Medical Lib.
OCT 12 1928

17th ANNUAL MEETING, WINNIPEG, Man.
OCTOBER 11th-13th, 1928

The Public Health Journal

OCTOBER, 1928

VOLUME XIX NUMBER 10

The Pathology of Bone Tuberculosis
R. I. Harris

Our Voluntary Assistants
G. G. Melvin

An Unpurified Pure Water
F. T. Underhill

The Venereal Clinic
Gordon Bates

Mastoiditis and Scarlet Fever
J. Grant Strachan

OFFICIAL ORGAN
CANADIAN PUBLIC HEALTH ASSOCIATION

Editorial and Business Offices:
40 ELM STREET, TORONTO 2

Vaccine Virus

(Glycerinated)

Protection against smallpox depends upon successful vaccination

Vaccine Virus, as prepared and distributed by the Connaught Laboratories, has been demonstrated to give a maximum of "takes" in primary vaccinations.

The purity and potency of this virus (smallpox vaccine) results from its carefully controlled preparation under ideal conditions and from the rigid system of testing applied to it.

Throughout the whole period of use of each lot of Vaccine Virus distributed by the Connaught Laboratories, the potency of samples of the lot is tested fortnightly. This service is a safeguard to the physician; for should any test show that a virus is losing its proper potency, it follows that the lot affected will be promptly recalled and replaced.

Diphtheria Toxoid
(Anatoxine Ramon)
Diphtheria Antitoxin Tetanus Antitoxin
Diphtheria Toxin for Schick Test
Scarlet Fever Antitoxin Scarlet Fever Toxin
Scarlet Fever Toxin for Dick Test
Anti-Meningitis Serum Anti-Anthrax Serum
Normal Horse Serum
Anti-Pneumococcic Serum
(Type I)
Typhoid Vaccine Rabies Vaccine
Typhoid-Paratyphoid Vaccine
Pertussis Vaccine

Insulin

Price List Upon Request

CONNAUGHT LABORATORIES
University of Toronto
TORONTO 5 CANADA

The Public Health Journal

Vol. XIX OCTOBER, 1928 No. 10

The Pathology of Bone Tuberculosis

R. I. Harris, M.B.,
Assistant Surgeon, Hospital for Sick Children, Toronto

IN a disease so chronic as is tuberculosis, so insidious in its onset, so obscure in its early manifestations and so slow in its progress, there are many pathological problems which are difficult of elucidation. One of the most interesting of these problems is that which deals with the spread of the disease, its entry into the patient and its dissemination to distant parts from the primary focus. In patients with bone tuberculosis, it is a subject of great importance, though unfortunately it has been nearly completely overlooked. Some description of the present state of our knowledge in this matter may therefore be valuable.

Though it has been common practice to regard bone tuberculosis as a disease by itself, this is an inaccurate conception. Tuberculosis of the hip, for instance, is something more than the chance invasion of bone by tubercle bacilli. It is the local manifestation of a generalized infection, and while the bone lesion may be the most conspicuous feature, the disease process as a whole should be visualized and taken into account. We can study best in children the sequence of events which leads to surgical tuberculosis, since in them the disease has been of relatively short duration. It is obvious that when a child of five years is found to have tuberculosis, it is not necessary to examine into its surroundings farther back than five years to find the point of contact with tubercle bacilli, whereas in adult patients the onset of the present infection may have occurred so many years previously that investigation of its origin is hopelessly out of the question. What follows therefore is based chiefly upon knowledge gained from the study of tuberculosis of bone in children.

Children become infected with tubercle bacilli from one of two sources: from human beings with open pulmonary tuberculosis and from the infected milk of tuberculous cattle. The great majority of cases are of human origin. The incidence of bovine infection varies greatly in different countries, (indeed it is likely that it varies in different parts of the same country) so that statistics based upon the examination of patients elsewhere are of no value to us in Ontario. The most accurate figures for the incidence of bovine tuberculosis

in Ontario are those compiled by Dr. R. M. Price[1]. She has been able to demonstrate that approximately 10 per cent of the specimens of tuberculous pus, sputum, urine, etc., obtained from patients in the Hospital for Sick Children, contained tubercle bacilli of bovine origin. We no longer believe that there is any special association between bovine tubercle bacilli and bone infection. Organisms from both sources infect patients and invade bones and joints in the same way and with the same ease.

The great majority of bone infections are with human organisms; not the reverse as was once taught. The importance of Dr. Price's work is this: it enables one to state that we have it within our power to wipe out 10 per cent of the tuberculosis in Ontario. Universal pasteurization of milk would eliminate the 10 per cent of tuberculosis which comes from milk. I know of no simpler method of eradicating so great an amount of tuberculosis.

Whether the patient be infected with human or bovine organisms, the path of invasion is through the mouth. Bovine bacilli are swallowed with tuberculous milk, and human bacilli are breathed in on droplets of infected sputum in the inspired air. Within the body there is no essential difference in the action of bovine and human organisms, so that we may abandon the distinction between them. From the mouth the actual invasion of the tissues takes place along one or more of three great pathways. 1. The bacilli may pass with the inspired air to the lungs and being deposited upon the walls of the alveoli there set up the first focus of tuberculosis. 2. They may be swallowed and after passing through the stomach may invade the intestinal mucosa. 3. They may be deposited upon the naso-pharyngeal mucosa and upon the tonsil and there produce primary foci of tuberculosis. Tubercle bacilli of the human type give rise chiefly to the pulmonary lesion, because they are air borne. Bovine organisms are chiefly responsible for intestinal lesions because they are food borne. Both forms may give rise to tonsillar tuberculosis.

Wherever the tubercle bacilli may have been first deposited (lung, intestine or tonsil) there they set up the characteristic tissue reaction which produces a tubercle. This is a primary focus. The dose of tubercle bacilli may have been so small and the resistance of the patient so high that the infection is stamped out before it has had an opportunity to spread farther. This probably is a rare event. More frequently, the disease spreads. Tubercle bacilli leave the primary focus and pass in the lymph stream to the nearest lymph gland. There they are filtered out and there they set up a fresh focus of tuberculosis. By a series of such steps the infection spreads from gland to gland until the whole of the lymphatic chain draining the area of the primary focus is the seat of a tuberculous process: mediastinal adenitis when the primary focus is in the lung; mesenteric adenitis when it is in the intestine and cervical adenitis when it is tonsillar. By this time sufficient resistance against the disease may be developed to permit its complete

eradication. Cure at this stage probably represents the type of tuberculous process through which the majority of us have unconsciously passed.

On the other hand, the patient's resistance may only be sufficient to wall up the tuberculous disease behind mats of fibrous tissue, where it lies latent, to flare into activity at some later date perhaps.

In still other cases, the disease continues to spread. Tubercle bacilli pass in the lymph from gland to gland until finally they reach the blood stream by way of the thoracic duct. More rarely the blood stream may be invaded directly by the rupture of a caseous gland into a blood vessel. The presence of tubercle bacilli in the blood stream—*i.e.* the existence of tubercle bacillus septicaemia—permits the dissemination of the disease to distant parts of the body. The numbers present in the blood stream may vary greatly. In the majority of cases they are few. I have only once been able to demonstrate the presence of tubercle bacilli in the blood stream, and that was in a patient dying from multiple foci of tuberculosis. Heavy infestation is uncommon. It leads to multiple foci of miliary tuberculosis and rapid death. The more common occurrence is the occasional shower of tubercle bacilli into the blood stream. It is probable that, under ordinary circumstances, these scattered invaders of the blood stream are effectively disposed of by phagocytosis in various organs of the body. They are "spurlos versenkt." Occasionally, however, an organism or a group of organisms manages to gain a foothold in the tissues and to set up a fresh focus of tuberculosis remote from the primary source of the disease.

Amongst the most common of these haematogenous foci of tuberculosis are those lesions of bones and joints which are grouped together under the heading of surgical tuberculosis. Tuberculosis of the hip and tuberculosis of the spine arise by invasion of the bone from the blood stream. It follows therefore that every case of bone tuberculosis must be suffering from at least one other focus from which the blood stream has been infected. This is true, though it is commonly overlooked. Most of them, when properly examined, will display evidences of a pulmonary lesion, active or healing. A few will reveal evidences of tonsillar infection in the form of enlarged cervical glands and still fewer will show signs of intestinal infection.

Patients suffering from bone tuberculosis display other evidences of the generalized nature of their disease. If there has been a sufficiently heavy infestation of the blood stream to produce one haematogenous focus, it is possible, and even probable, that other foci may have been laid down also. This is indeed the case. Patients who suffer from bone tuberculosis frequently display a multiplicity of lesions. A careful search will reveal that more than half of them have more than one focus of tuberculosis.

The widespread nature of the disease when bone lesions are present is evidenced not only by the occurrence of multiple bone foci but also by the

frequent presence of soft tissue lesions of haematogenous origin. When tubercle bacilli have been present in the blood stream they are as apt to be deposited in soft tissues as in bone, though the detection of such soft tissue foci may be more difficult. Patients with bone tuberculosis frequently have also haematogenous lesions in soft tissue; as, for example, multiple subcutaneous tuberculous abscesses, or tuberculous bursitis.

Perhaps the most interesting of the haematogenous soft tissue lesions which may accompany bone tuberculosis is tuberculosis of the kidney. This manifestation of tuberculosis is blood borne in practically every case. It would not be unreasonable therefore to expect to find it with greater frequency amongst patients who present the obvious evidence of a blood stream infection in the shape of bone tuberculosis, than amongst patients whose disease is still limited to the primary focus as in pulmonary tuberculosis. It has been interesting to demonstrate that this is indeed the case. For example, upon examining carefully the urine of 47 adult cases of bone and joint tuberculosis, tubercle bacilli were discovered to be present in 16 (34 per cent) of the samples. Amongst 67 children, 9 (13.4 per cent) were positive.

This research into the incidence of renal tuberculosis amongst patients suffering from bone and joint tuberculosis not only demonstrated the unexpectedly high incidence of the renal disease, but showed also several interesting facts in the pathology of renal tuberculosis. These may be summarized briefly, as follows: The term tuberculosis of the kidney is used commonly to describe a caseating process which has destroyed a considerable amount of kidney substance, and is accompanied by definite symptoms. This is a comparatively late stage of the disease. The first invasion of the kidney occurs many months, or even years, before the patient has symptoms which attract attention to his genito-urinary tract. Symptoms (frequency and pain) do not occur until the tuberculous disease extends to the bladder. During the long silent period which elapses between invasion of the kidney and invasion of the bladder, tubercle bacilli are intermittently or constantly present in the urine. In the majority of cases the renal disease is bilateral, as might be anticipated from its haematogenous origin. Many cases of renal tuberculosis heal spontaneously. Probably only the minority of cases go on to the caseo-cavernous type of renal disease which ordinarily we designate as renal tuberculosis.

A consideration of the course of the disease in bones and joints and in kidneys makes it seem likely that blood stream invasion is a common event in almost every case of active tuberculosis. From time to time, showers of tubercle bacilli reach the blood stream. The majority of these organisms are destroyed. The minority manage to gain a foothold and set up fresh foci of tuberculosis. In all probability, under favourable circumstances, the great majority of these haematogenous foci heal without producing symptoms;

only a small number of them progress to a stage which gives rise to symptoms and disability.

Many cases of tuberculosis pass through stages which are analogous to those of syphilis. There is a primary lesion at the point where the body is first invaded. There is a secondary stage characterized by blood stream dissemination, and a tertiary stage in which the primary focus has healed, and the disease is manifested by isolated lesions of haematogenous origin. Perhaps it would be more accurate to compare these cases with such a disease as osteomyelitis. Where the body is invaded by microorganisms, a primary focus is formed. This gives rise to a septicaemia and from the blood distant tissues are infected. Of course, not every case of tuberculosis passes through all these stages. In many, the disease appears limited to the area primarily involved. But spread by way of the blood stream may occur in every case and its possibility should be borne in mind.

From this survey of the pathology of tuberculosis certain axioms of value in the management of tuberculous patients may be established.

1. When a diagnosis of tuberculosis has been made, our duty to the patient and to the public has not been completed until an adequate search has been made for the source of the patient's infection.

2. Every case of tuberculosis tends to become generalized. Obscure symptoms should be carefully considered in the light of possible evidence of fresh foci.

3. Patients suffering from bone and joint tuberculosis have already passed through a blood stream infection. It is evident therefore that (a) a primary focus must exist somewhere in the body. It should be sought for. (b) that other haematogenous foci may have been deposited. They should be sought for, and (c) in particular, the kidneys may have been infected. The urine should be carefully searched for tubercle bacilli.

[1]Price, R. M.—Personal communication concerning work now in progress.

Our Voluntary Assistants

GEO. G. MELVIN, M.D., D.P.H., L.M.C.C.,
Chief Medical Officer of New Brunswick

IT is a difficult thing to do, and it is well that it should be so, to belittle or attempt to frown upon voluntaryism in an Anglo-Saxon country. If we have made any mark in the world—and we ourselves, at least, think we have—it is because of individualism, and this quality is a twin brother to voluntary urge. Other communities and races have prospered and apparently been reasonably happy, after a sort, in being guided by officialdom in most things. It would be invidious to specify examples and far from expedient.

Voluntary organizations are not confined to matters of public health. Indeed, it is a little difficult to think of any activities of our life not touched by them. Even in our prospective marriage adventures, the principals in such, together with the official issuer of the license, the clergyman and the bridesmaids are by no means the only participants in the happy event. Often, long before the wedding eventuates, perhaps even before the preliminary offer and its loving acceptance take place, voluntary agencies are not slack in making themselves felt, and it is a matter of common knowledge that these agencies not infrequently take upon themselves such credit for the satisfactory outcome, that little remains to be ascribed to the two principal participants. It is possible, at times, these latter find themselves married much after the same procedure in which the British Empire was formed—"in a fit of absence of mind".

It seems, then, a thing of the most elementary justice that the free will and spontaneous actions in matters of matrimony of our cousins, our uncles and our aunts (especially our aunts) should be accorded ample recognition.

I do not think the writer is entitled to go further in proof of the beneficent activities of our volunteer friends. As respects their participation in public health activity there is no lack of proof. Nothing in recent times has perhaps had so great an attraction for men and, to a still more pronounced degree, for women, as the physical welfare of humanity in general and, in an especial way, for that part of it in more or less juxtaposition. The writer is not sure that he can call to mind one single aspect of public health that has not engaged, in a certain sense, their unwearied and sometimes their critical if not censorious attention.

It was not always so. The writer is not too young to remember the receding waves of that great flood of anxious care displayed, say, in England, not pronouncedly with respect to the temporal welfare of the body but predominantly the spiritual conditions and prospects of the ordinary man and

woman. It would require an expert, of course, to adequately depict the necessity of such movement and the degree of enthusiasm which it finally attained.. In drab truth, no one, even if he be a cynic, could well overstate the necessity of such undertaking even if only in a general way confined to certain classes. It went, however, as do so many enthusiasms, to a point at which the cynic was sure to appear and when he really appeared to be needed. And such a one did appear as the world has not seen before or since. Cervantes did not give chivalry such a knock-down blow as did Thackeray this spurious cult in his inimitable book "Vanity Fair"—the best novel ever written.

That one extravaganza is liable to develop another and its opposite one, it is but necessary to remember Lady Southdown's eldest daughter and Mrs. Rawdon Crawley. Both were enthusiasts, the one for the souls of her social inferiors, the other for her own spirit of social ambition. Each had her favourite "literature"—one "The Washerwoman of Finchley Common" and "A Brand Plucked from the Burning" and the like, the other, "The Rose upon My Balcony the Morning Air Perfuming". The tract distributed from the landau by the footman and the song warbled at the piano at high routs, were typical of the period and of aspiring women at a single but varied end of the social scale. The religious tract has suffered a great eclipse in that end of society; physical instead of other-world happiness has now become the lodestar, the mere male has been largely grafted by the "senior" partner into the work of the rehabilitation of the body, and the same voice which warbles the song at one hour, presides over mothers' meetings the next.

That both the heavenly and earthly interests of the people profited at one period and the other must be acknowledged by both the ecclesiastical and hygienic authorities whose peculiar provinces were seemingly invaded.

With us, however, of the "'post-war era", the temporal welfare of the public seems to have attained a position of importance of commanding scope as compared with that of the future world. The efforts of those anxious for such welfare have now for long been of no individual or unorganized class. Associations, "committees", societies sometimes rivalling the official and authoritative units in territorial area and far outnumbering them in name, are plentifully sprinkled or sown over North America, north of the Mexican border. In variety of aim they have apparently quite exhausted the field of individual, domestic and community hygiene. One would find it a matter of considerable difficulty to name one definite object of public health that has not at least one society behind it doing what it can to advance that particular interest for which it stands. Recently in a most excellent publication, the writer counted the names of something like thirty persons as chairmen or convenors of various groups of one parent society, each devoted to the prosecution of some one particular point in the public health field.

But this is not all. Quite recently a number of societies, not as yet very numerous but most of them of large membership and of great influence, have

assumed a wider scope and embrace the whole of public health in their purview. I am not just sure that the primary task of collecting the records of births, marriages and deaths has yet been taken within their grasp, but the writer nevertheless feels there is even here a useful scope for their activities in promoting among the people generally, more interest in this all-important service in its various ramifications.

In addition, nothing has become more common than for organizations having to do directly with health and life in a financial way such as insurance offices, large commercial and manufacturing plants and others, to take a lively interest in the promotion of public health. Such interest is manifested in various ways. In purely financial institutions as insurance, it often takes the form of a definite sum of money usually spent under the direct management of the firm itself for the benefit of its policy-holders or, not infrequently, under the same management in the public interest generally. The commercial houses very generally devote their funds to their employees, the direction being under control of some more or less trained hand.

Once more pure philanthropy often comes to the assistance of the official health work. The services are most frequently devoted, so far as management is concerned, to acquiring information where and how public health work may be forwarded, and, after the settlement of such point, it is commonly the custom for a certain sum to be handed to the official health authority to be administered for the purpose indicated.

It would require a longer article than can be afforded here, to make the list of the varieties of our voluntary assistants at all inclusive. Indeed, they are by no means all organized even in small groups, nor do they in any way aspire to permanency. The individual man or woman who at odd times gives us countenance and moral support (and there are millions of them), forwards public health in a fashion, in kind if not in degree, unapproachable by all other aid. He manifests his goodwill in the welfare of his neighbour, and in his assurance by his act that he has confidence in the capacity of his official health authority to do the particular thing it is taking upon itself.

Naturally, our assistants have the failings of their position, and although the old proverb says it is "not well to look a gift horse in the mouth", yet we know very well that many of those old "wise" sayings have become time-worn and often untrue, even if they ever possessed that essential element.

The tendency at which I have good-humouredly glanced at the outset, for our friends to claim a virtual monopoly in the attainment of a good result, is one, perhaps, leading to a possible element of bitterness more distinct than any other. It is not many years ago that I heard a very prominent lady of Toronto passionately aver in a public meeting that that city owed its relative freedom from typhoid solely to herself and her voluntary associates. At another time and upon a like occasion I heard another lady declare that the object of her society, so wide and effective was its scope, was to abolish hospitals by rendering them unnecessary. This happy conclusion was fast

coming about, and it was only necessary, in order to arrive at it, to enthusiastically support the voluntary society with which she was connected.

Another and graver defect in our friends is the confidence often apparently manifested by them that they "can make a better shoe than can the shoemaker". All of us, official and lay, it had better be confessed right now, are frequently bitten by this maggot. For instance, who among us during the late great war did not feel himself quite competent at times, to conduct it in a way far superior to the actual method by which it was being carried on. Certain it is that the present writer had curious and not altogether inarticulate ideas in this direction and confesses to having not quite cleared himself of them yet.

The actual trouble seems to be that public health as a service has yet to come to its own in standing or reputation. In many places the widespread appeal to the general public on its behalf has unwittingly tended to debase it as respects standing. Its popularization was an excellent object but perhaps was over-excellent. A portion of that which it gained in appreciation was lost in downright respect for the service itself. Large proportions of the public became unconsciously imbued with the notion that its application and administration was a rather "rule-of-thumb" affair, in the conduct of which any fairly intelligent person could take a more or less prominent part. The idea that it is a very definite and separate branch of knowledge or science has not sunk sufficiently into the lay mind. The widespread opinion that a medical doctor is necessarily an authority on public health is partly the cause of its insufficiently rooted standing. It seems difficult for many of our lay friends to grasp the principle that one may be a remedial medical man of positively high standing and yet know little of the foundations of preventive medicine and still less of their practical application. What we know little of we are not apt to take great interest in unless, indeed, that little is almost infinitesimal. In the latter case the "interest" is liable to be erratic.

The remedial section of the medical profession (still the bulk of it) is largely responsible. In their colleges and hospitals no pains are spared to teach and exemplify each particular of the science and art of healing and repair, but it is often too frequent that the student receives but a jejune education and training in the associate science and art of prevention. Frequenty the writer has had before him for examination for license to practise, applicants otherwise apparently of more than average ability, who stated that the "trap" under a kitchen sink was for the purpose of catching fish-bones and stray hairs. The name of the contrivance, in their lack of preventive knowledge, led to their undoing. Again, it is far from infrequent, from the same class of student, to receive the assertion that water is heavier than milk and that the incubation period of scarlet fever is about the same as typhoid.

A fourth imperfection is the not infrequent failure of volunteer groups

to function after a relatively short career. This may result from any one of a multitude of causes. Funds may run short, enthusiasm may run low, overlapping or parallelism of work may exist or develop with another body and so on. Such a falling out in general is to be deplored mainly because if a useful work was hitherto followed it often results in the uptake of such work by a new or other society. The successor may have no experience in it whatever and "experience" plays an important part in public health with both volunteer and official staffs. "A new broom", it is true, "sweeps clean, but the old one knows the corners".

In view of this it is not surprising that our voluntary lay friends have not that precise knowledge of public health, or perhaps persistence in it, which could be wished but which nevertheless it is clearly unreasonable to expect of them. Indeed, it is but fair to say that within a few months the writer has been assured by the active head of a most important voluntary association, that he (the said head) possessed little or no practical knowledge of public health.

Another defect of our voluntary assistants is not so susceptible of proof. It is questionable if ever a rational estimate of the amount expended by social organizations to further public health has ever been made in any country. Such terms as "large" and "vast" and "highly commendable" are commonly used and occasionally actual figures are given. Nearly every such organization makes an effort to keep a strict accounting so far as its individual activities as a unit are concerned, but even for groups, time and effort and the provision of actual goods make it almost impracticable to furnish anything like an exhaustive accounting. The writer is not sure that such a situation is one to be adversely dwelt upon. The object to be attained is, in its essence, charitable, and it is thought to be proper in the administration of that noble virtue, provided that honesty is engaged, not to look too closely into the sum of the amounts which we dispense from time to time in pure philanthropy. The dispensers profit greatest by such activity, for nothing is truer or better substantiated than that "it is more blessed to give than to receive". To give, as it were, with one's recollection of the act quickly obliterated adds immensely to the donor's profit. After all, as one considers these principles that, short of a veritable chaos in the simple accounts of an altruistic society, the less "business" that mingles with the matter the better. This, one is aware, is hardly in consonance with strictly up-to-date practice.

Yet, viewed from a lower standpoint, the actual value and pseudo-sacredness of the dollar, it seems true that most considerable sums are collected and spent by our volunteer helpers. That fact alone is quite more of a commendation than a disparagement. The very soul of wealth lies in its circulatory powers. Wealth not used is like knowledge under like conditions which in the biting words of Froud, "lies like cobwebs about the brain or dries like raindrops off the stones". But the purpose of our friends is, and properly, not to restrict expenditure but to attain results. Wealth is not

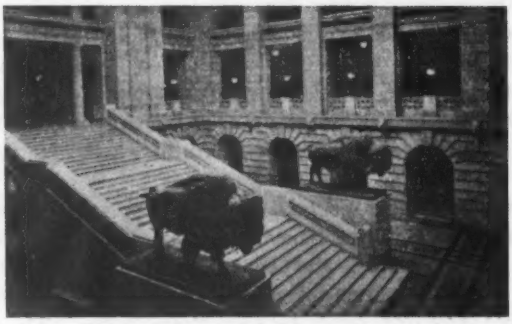
usefully circulated if somewhat proportionate results do not follow, and to fairly settle the question of results is of far greater importance and of infinitely more difficulty than to attempt to estimate the amount actually expended. Almost no voluntary organization omits to report. But it is an accounting, generally speaking, altogether in the hands of the organization itself and is responsible only, and that but in a moral degree, to that inchoate mass—its subscribers. It is true that this accounting must in the main be inclusive. It does not often fail in this regard. The value of these results, however (and they may be great), is subject only to the estimation of the compiler of the report, an estimate not always convincing because of the limitations respecting the knowledge of public health of the compiler already adverted to. Should such results be of less importance than appears in the report, no matter what the amount expended, it is plain that such results have been obtained at an unnecessary cost. Yet no practical effective authority exists to point this out or to take measures to improve procedure in the future. This is perhaps the gravest defect that may happen under the conduct of the volunteer worker or organization. Within a year, for example, it was pointed out to the writer orally, it is true, but with the object of illustrating the high standard of work conducted by his society, that the latter had been the means of relieving a young boy by surgical means of a dermal union between the wall of the chest and the adjacent arm, the result of a lesion caused by a burn improperly put up. This really trivial operation was conscientiously put forward as almost a miraculous achievement wholly due to the efforts of his society.

So far as contributions go towards the support of either voluntary or authoritative ones, it should be remembered that in each instance these come from the same general source,—the people. Under the former the contributors are known as subscribers or benefactors; the latter as taxpayers. A fundamental difference, however, exists between these classes. The one is partial: the other universal. The one is self-moved: the other acts in accordance with law. The one pays, as it were, a double tax,—to the society and to the government: non-contributors alone pay to the government. The fact that the former may in general be in a better financial position than the latter has no logical significance. It may not be, in a multitude of instances is not, a fact at all. Nevertheless there is a most distinct and fundamental difference between the classes. Hence there is of absolute necessity a like difference in administration and responsibility. The one is the free irregulars, formerly so common in war: the other is the mobilized and disciplined force whose only business it is to combat the onsets of disease and the habits of improper living.

The one, in theory, should give place to the other. The other, in theory (and a much stronger one), should be able to prove itself equal to all requisite calls upon it. In no country has logic been pushed to this conclusion, and it is the writer's earnest hope that such will never be successfully attempted.

What if full value (and value is here a most debatable term) be lost in the expenditures of our assistant friends! Can any official health department say with convincing proof that like misadventure does not occur under its management? It may be a question of how much or how little is the waste, but man was not made for wealth but the reverse.

To get rid of wealth even by waste, so abhorrent to the professional economist, is not always the worst fate that can come upon either individual or nation. Wealth has wings and can fly away. Because of this, it can also fly back, and so the writer as a conclusion is tempted to reiterate "it is more blessed to give than to receive".



THE GRAND STAIRCASE
THE CAPITOL

17th ANNUAL MEETING

CANADIAN PUBLIC HEALTH ASSOCIATION

WINNIPEG, OCTOBER 11-13, 1928

An Unpurified Pure Water

By F. T. Underhill, M.D., D.P.H., F.R.S.I.
Medical Health Officer, Vancouver, B.C.

AN untreated water supply, pure at origin, and uncontaminated at any point in its flow to the consumer's tap, is an ideal that most cities of North America have long since abandoned. Such a supply, in great quantity, Greater Vancouver possesses.

As contrasted with the bulk of eastern cities, the Greater Vancouver supply is practically distilled water, with its averages of total solids under 50 parts per million; of bacteria under 50 colonies per cc. It comes from a watershed practically uninvadable by permanent population, which is in any case excluded by law, and is meticulously guarded against any form of contamination from the unavoidable temporary human element, every individual of which, from the commissioners of the Metroplitan Water Board to the humblest camp-servant, must show a negative Widal test before admission to its sacred precincts. Pure at its origin and protected throughout its course, there is no need now, nor any reason to foresee need in the future, for purification of this supply at any time.

Vancouver's water supply is deservedly noted for its excellence and purity, and is one of the greatest assets which the City of Vancouver possesses. Realizing this, the city council, under expert public health advice, has wisely adopted every means to preserve its purity, and in this they have been given the full co-operation of the Provincial Board of Health, the Forestry Department, the Department of Marine and Fisheries and the Game Warden in so far as their respective departments were affected.

Source of Supply

The supply is derived from two mountain streams, Capilano River and Seymour Creek, which are fed by the melting snow of the coast range and travel some miles before reaching the intakes. The Capilano intake is situated at an elevation of 471 feet and the water reaches the city in two pipes, of 32 inch and of 26 inch diameter, and is distributed by gravity. The Seymour intake is at an elevation of 497 feet and has three pipes, one of 24 inch and two of 36 inch diameter. This water also is distributed by gravity.

In 1926, the City of Vancouver and the municipalities of South Vancouver, Burnaby and Point Grey pooled their interests and brought into being the Greater Vancouver Water District, which is controlled by a commission consisting of representatives of each district. This commission has for its object the development of the water supply, having in mind the probable needs of the whole district for many years to come. Their jurisdiction ends with the delivery of the water to the distributing mains of the city and other municipalities, who then take over the further distribution of the water in

their respective areas, and are assessed by the Water Board at an agreed rate for the amount consumed.

The question of the conservation of the water supply, both as to quantity and purity, has always been a first consideration. Fearing that the denuding of the watershed areas, by logging operations or by fire, might seriously affect the flow of water in the summer months, the city council petitioned the provincial government to create a timber reserve in the areas affected. This has been done in so far as government-owned lands are concerned, and the city has been able to acquire by purchase certain privately owned properties which might otherwise have been logged over. Other timber rights, however, had previously passed from the control of the government, and the owners, deciding to exercise their rights, commenced logging operations on the Capilano watershed.

It therefore became necessary, if the streams were to be preserved from contamination, to frame stringent regulations for the conduct of the camps and of the men while in the woods, and these were passed by the Provincial Board of Health under the provisions of the Health Act.

The main features covered by the Regulations are as follows:—

1. The appointment of Watershed Inspectors, by the Greater Vancouver Water Board, subject to the approval of the Provincial Board of Health.
2. Plans and location of camps to be approved by the Provincial Board of Health and the local authorities.
3. Sanitation of camps to be under the supervision of inspectors.
4. Conveniences to be provided for men working in the woods.
5. Certificate of health required of all persons entering the watershed areas.
6. All persons, before entering the watershed area, are required to submit to a Widal test, and be able to produce to the inspector a certificate to the effect that they are not "carriers" of typhoid fever, so far as this test goes.

Control of Logging Camps

The chief industry situated on the watersheds is the extensive logging operations of the Capilano Timber Company. This company has several permanent camps and employs several hundred men in the busy season. From the commencement of their operations they have shown every desire to safeguard the water supply, and their camps are model ones.

The watershed inspector has his quarters at the camp and supervises all the sanitary arrangements and the proper disposal of liquid and solid waste. The situation of the camp was approved by a committee representing the provincial and city authorities, special attention being paid to the contour of the land so that there is no direct surface drainage from the camp to the stream. "Lascar" closets are installed in the camp for the use of the men,

as they are the most satisfactory from the point of view of cleanliness, and the drainage from the toilets and urinals is run to a septic tank and from there to properly constructed filter beds. Bacteriological tests are made of the resultant effluent from time to time to check the efficacy of these measures.

The drainage from the cook house, bathing house and laundry is run into grease traps and from these to filter beds, before being allowed to seep away into the ground. All camp refuse of whatsoever kind is destroyed by incineration. Pails are provided for the convenience of men working in the woods, and these are removed daily and the contents destroyed in the incinerator. The foregoing precautions are also followed in connection with men employed by the Greater Vancouver Water District on the waterworks construction gangs.

Other measures which have been put into force from time to time are included in the following:—

1. Fishing in the lakes and streams on the watersheds above the city's intakes is prohibited.
2. Hand logging and the floating of shingle bolts and logs in streams rising in the watersheds are prohibited.
3. Hunting on the watersheds is prohibited.
4. Mining permits are not issued in the watershed area.

These prohibitions have removed practically every incentive to persons to trespass on the watersheds, with the exception of the ubiquitous hiker, who is discouraged as much as possible.

Frequent inspections are made of the watersheds and the banks of the streams, and on a number of occasions the remains of unauthorized and insanitary camps have been found and destroyed, showing the need for watchfulness.

Analysis of Water

Samples of water are taken every week for analysis by the City Analyst, and below is given the average for the year 1927, stated in parts per 1,000,000.

	Capilano	*Seymour*
Total Solids	37.20	45.35
Volatile	15.96	18.67
Fixed	21.24	26.68
Chlorine	2.69	2.73
Ammonia—free	0.017	0.025
Ammonia—albuminoid	0.027	0.032
Nitrogen as nitrates	0.58	0.62
Nitrogen as nitrites	None	None
Reaction	Neutral	Neutral

Bacteriological.

Samples of water are examined as a routine measure at the Provincial Government Laboratories at the Vancouver General Hospital each week. The average count for the year 1927 for Capilano was 21 per cc., and for Seymour 40 per cc.

The Venereal Disease Clinic*

GORDON BATES, M.B.
Medical Director, Venereal Disease Clinic, Toronto General Hospital

THE problem of venereal disease control is extremely difficult. It seems to me that more information as to the possibility of ultimately reducing the problem may be obtained in a venereal disease clinic than anywhere else. We now have a large number of such clinics and our opportunity is multiplied proportionately. I desire in this paper to take up some of the questions which seem to be worthy of discussion at this time and to make them intelligible to an audience whose desire is to contribute something to the mitigation of an evil which, having its origin in the misdirection of a force which normally adds immensely to the sum total of human happiness, through this misdirection, instead, adds disabilities and misery untold to the ward's problems; for the story of venereal disease and its results is a terrible and a tragic story indeed.

As far as is possible I am anxious to speak from the point of view of a clinic director and to add something to what you have already heard this afternoon as to the elucidation of the problem as it unfolds itself through daily contact with the clinic patient.

Perhaps the first thing which strikes one in a large venereal disease clinic is that the patients on the whole seem very like patients attending the other clinics in the hospital, neither better looking nor worse looking either as to mental or physical characteristics. While it is true that there are certain characteristic outward signs in the early case, most cases attending clinics are in a stage of the disease in which the average person could not detect the presence of the disease. This gives me the opportunity of emphasizing the fact that there are large numbers of syphilitics who despite the fact that they are harbouring germs which will ultimately fulfil their sinister purpose and cause serious disability or death, for long periods are absolutely free of symptoms. Indeed many syphilitics have no idea of the fact that they have syphilis at all. This brings out the first point that I would make, that in all general hospitals all patients should be submitted to the routine Wassermann examination. One will find that perhaps 35 per cent of cases discovered will be unaware of the existence of their infection. May I in passing remark that since the initiation of the anti-venereal disease campaign, we have discovered by means of the routine Wassermann that the percentage of syphilitics in the wards of Toronto General Hospital has been reduced from 12.8 in 1917 to 3.8 in 1927. From the beginning a large

*Read before Canadian Conference on Child Welfare, Montreal, April 25, 1928.

proportion of the cases attending the venereal disease clinic has been recruited from the wards by the continuous use of the routine Wassermann.

Syphilis from the hospital angle presents other problems. It is necessary to get patients, to keep patients once they have reported for treatment, to bring in sources and contacts; and all of these matters require special attention, besides the mere matter of seeing that patients receive efficient treatment, that they are properly educated in the dangers of their disease to themselves and others and that they are not discharged from treatment too soon.

I would emphasize the fact that the venereal disease clinic by itself will not control venereal disease. The control of venereal disease in any community depends on a study of the factors making for its existence, a recognition of the fact that these factors are social and an attempt to deal with them on a community scale by community organization.

Perhaps the first thing to be considered is education. In Toronto we have had a persistent educational campaign from the beginning. The mere fact that such a campaign has attracted patients to clinics demonstrates its value. The existence of a strong local Social Hygiene Council, to whom the education has been entrusted, however, has resulted in more than this. It has meant that a group of interested citizens has been kept busy correcting, one by one, deficiencies in legislation and social organization as they are called to their attention by means of investigation carried on in the clinics.

Some examples will be in order here.

Very early it was discovered that to attempt to control venereal disease with no legislation was difficult, if not impossible. Legislation was obtained by calling the necessities of the case to the attention of the same group which now carries on the local Social Hygiene Council. The legislation provides for notification and compulsory treatment just as does legislation concerning other communicable diseases, although there are certain safeguards rendered necessary by the nature of the disease. For example, the physician is not required to report his patient by name unless treatment is neglected. Very great care has been exercised to avoid discrimination against women. It is interesting to note that actually more men than women have been dealt with under this legislation, as is evident in the accompanying data of a single year.

At the time of the passage of the Ontario Act for the Prevention of Venereal Diseases there was a feeling in some quarters that it might be used merely for the purpose of attacking the prostitute class. A study of the data given will convince one that it has not worked out this way. In Toronto the question of crime and that of public health have been kept separate, and in the operation of the Ontario Act for the Prevention of Venereal Disease the person alone is dealt with. Neither sex is specifically mentioned in the Act.

Summary of 1927 Data

Cases Brought Under Act

a. Report on suspect cases of V.D. 130
b. Report with diagnosis to secure treatment 92

	Male	Female	Total
Syphilis	50	15	65
Gonorrhoea	6	16	22
Both	2	3	5

Prisoners in Custody

Total number of cases in 1927 1503
Men's Farm 1250
Women's Farm 173

Results

	Male	Female	Total
Syphilis	55	32	87
Gonorrhoea	17	15	32
Both	1	9	10
Negative	1205	169	1374

Total Number of Venereal Disease Cases Reported by Serial Number by Hospital Clinics, Private and Jail Physicians

Year 1927

	Male	Female	Total
Hospital Clinics.			
Syphilis	243	144	387
Gonorrhoea	327	155	482
Private Physicians.			
Syphilis	39	65	104
Gonorrhoea	141	77	218
Chancroid	0	0	0
Jail Physicians.			
Syphilis	56	41	97
Gonorrhoea	18	24	42

Summary.

Total number of cases of syphilis reported 588
Total number of cases of gonorrhoea reported 742
Total number of cases of chancroid reported 0

This does not mean that the voluntary group is not interested in preventing discrimination against women when the question of prostitution is dealt with. The venereal disease problem and the prostitution problem are closely related, and the local Social Hygiene Council in addition to its broad educational programme has under consideration from time to time the matter of laws and machinery having to do with fair treatment for both sexes. The double standard of morals is likely to be in evidence even in the way the two sexes are treated in police court, and I would suggest that the appointment of a woman magistrate may be one way of seeing that men and women are treated alike.

As regards the police policy towards prostitution in Toronto, it has been one of rigid repression for a good many years now. As a result organized

prostitution has disappeared. Clandestine promiscuity there is, of course, but the commercial aspect is very little in evidence. One may readily arrive at an opinion on this matter by a casual investigation among patients attending the venereal disease clinics in any of the hospitals.

May I in passing pay a tribute to the influence of the woman magistrate. The presence of a woman physician on the Bench (Dr. Margaret Patterson) has been of very great value in developing a proper point of view in Toronto towards both the male and female sex offenders. May I make bold to suggest that while I have every respect for women's influence in the home, I have little sympathy for those who would limit her influence outside the home. Dr. Patterson is a good example of how effective such influence can be.

The venereal disease clinic in a general hospital provides many opportunities for effective service beyond the mere treatment and limiting of a communicable syphilitic or gonorrhoeal infection. Such an infection extending over a period of years means that probably extensive physical and perhaps mental damage has been done. We make it a rule to undertake the routine physical examination of all patients attending the clinic, and the cardiac, neurological and other complications unearthed are very numerous. Frequently damage has been so serious that complete repair is impossible although the progress of the disease may be checked. The essentially important work of the clinic, however, is to diagnose, treat and keep under treatment the early case.

Some reference has been already made to the means to be adopted for keeping such cases in particular under treatment. Here it seems to me that the most important factor is education, and the poster, the lantern slide and proper distribution of literature all play their part. None, however, are as important as the heart to heart talk with the clinic physician on the occasion of the first visit. A careful description of the dangers of the disease and the urgent necessity for regular treatment are essential. The graduate-nurse-social-worker is, of course, invaluable. She is an essential part of the clinic machinery, which indeed would fall down altogether without her. It is seldom necessary to resort to the actual use of the venereal legislation, but the fact that it is available has a most stimulating effect on patients who would otherwise be recalcitrant.

One difficulty which exists probably in most venereal disease clinics is inherent in hospital and particularly out-door structure. Most of our hospitals were built before the venereal disease problem was discovered. Particularly in this disease privacy is desirable for investigation by either the physician or the nurse-social-worker. The cubicle system clinic would seem to be ideal, although I know as yet of no hospital in Canada where it is in actual operation. Under such a system the conditions approximate those in private practice. The patient can tell his or her story privately to the physician without any of the reserve which is inevitable in many clinics

where conditions are more like those before a department store bargain counter than in a physician's office. In such a clinic, fashioned I should think along the pattern of St. Thomas' Hospital, London, Model Venereal Disease Clinic, the physician can take histories himself and examine, diagnose and treat patients assigned to him. Patients should be seen always by the same physician for obvious reasons. The cubicle system makes this arrangement easy.

The following case provides a sample of the sort of information which may be elicited by careful investigation. A woman from a place about two hundred miles from Toronto, while a patient in Toronto General Hospital, was found to have a positive Wassermann reaction. By communicating with her family the following condition of affairs was revealed:

Mrs. J. S.—Mother—Wass. V.S.P.	Next child „ V.S.P.
Father—dead—Cause, G.P.I.	Next child „ Negative.
Eldest child Wass. Negative.	Next child „ V.S.P.
Next child „ V.S.P.	Next child „ Negative.
Next child „ Negative.	Next child „ Negative.
Next child „ Negative.	1 daughter-in-law Wass. also V.S.P.
Next child „ V.S.P.	1 daughter-in-law „ Negative.
Next child „ Negative.	

(V.S.P.=Very strongly positive.)

By correspondence and co-operation with the public health authorities it was found possible to get these patients under treatment. I need scarcely say that often before syphilitics are discovered the disease has already done a great deal of damage, often more than in this family.

The following is a further example:

Case 2. Father, first reported, has G.P.I. Is in an asylum.
Mother Wass. V.S.P.
Bertha—aged 15—Wass. V.S.P. Inter. Keratitis.
1 baby died—enlarged liver.
1 child—age 12—juvenile paresis. Wass. V.S.P.
1 child—age 9—Wass. V.S.P.
1 child—age 6— „ V.S.P.

Mothers' pension has been granted. The above are all public charges.

In Toronto the machinery for dealing with such cases is simple. It is not quite so simple in the smaller cities or districts, although here too there is machinery.

Six hospitals with properly staffed venereal disease clinics with social workers attached, working together in co-operation with an efficient department of health, plus good venereal disease legislation make a strong combination. A case of syphilis reporting at a hospital not only ensures the effective treatment of that case but in addition may make possible and even likely the examination of sources and numerous contacts. Such work carried

on continuously will ensure the diminution of the incidence of venereal disease in a community.

The question of prophylaxis is much discussed in some countries, and army methods during the war have resulted in an occasional demand for it. Generally speaking, in this country we have avoided stressing it, and there would appear to be no reason for entering into a controversy anent the virtues of the prophylactic packet at this time. At the same time, there is no doubt that the person who has been exposed to a possible infection should report to a physician or a clinic at once, and I see no reason why local educational propaganda should not include information to this effect. In such cases the use within a few hours of calomel ointment and permanganate solution will prevent infection. It seems to me, however, that even the advertisement of this fact, unless it is carefully done, may do harm in a civil community. Properly handled it should be of value.

Through one's everyday contact with the patients in a venereal disease clinic one develops a point of view towards the venereal diseases themselves. One can only see them as a great national disease problem which neglected means tremendous losses to Canada from unnecessary disability and death among her citizens. Nor can we fail to be impressed by the sad procession of children who, if they live, will lead sadly blighted lives, suffering from disabilities of which they are the innocent victims. One cannot but be heartened by the knowledge that Canada has a venereal disease programme in which the Dominion and Provincial Governments have co-operated successfully for a number of years, with the result that no less than 200,000 persons have been reported as having been brought under treatment to date. Nor can one but feel that we should go much further. For what of the still remaining vast army of persons who, already infected, unaware of their condition, are likely to suffer more themselves and pass their infection on to further victims? This simply means that we must not let up on our efforts. May I in passing say that only by the adoption of a national method of stock-taking can we achieve completely satisfactory results. We do not know how many healthy Canadians we have nor how many diseased. (I am not now speaking of venereal disease only.) We know that because of this fact incipient disease of all types develops unnecessarily into serious conditions which fill beds in hospitals and institutions for the defective, with persons who should be well. I can see no other cure for it than the adoption of a national periodic health examination scheme. Only by such a method resulting in the discovery of ailments often at the time trivial can we hope to materially extend our average length of life, and in the absence of a scheme of this type I do not see how disease can be stamped out.

What about the relationship of the venereal disease problem to morals? What about teaching sex hygiene? Do our young people know enough? My answer is that I am not an ardent supporter of sex hygiene as it is commonly or at least too often taught. In too many cases our young

people know too much already. There seems to be nothing left to the imagination, nothing sacred, nothing good any more. Certainly this is the impression one gets from reading a large proportion of our current fiction. Where training is necessary in the case of children it should be left in the hands of the parents, who, of course, should not be left entirely uninformed.

Parent training we need, and parents among other things should be able to guard their children against sex mishaps. But there is more than that; health, character formation, preparation for marriage and the ultimate assumption of the duties of parenthood are needed by our young people. If they can be made to realize their responsibilities for the carrying on of a finer and healthier race of wiser people the problem will be solved. Certainly it will not be solved by the vapourings of a certain misguided gentleman from Denver—truly a blind prophet attempting to lead us into morasses and ditches from the filth of which we may have difficulty cleansing ourselves. I believe that the eugenic ideal is more to the point. We must strive to build up a better race if we would even achieve a higher average of happiness for the average person. And health teaching and teaching as to the significance of so ruling our lives that our mating may be pure and normal, will do more than our somewhat sentimental morality of the past. When we realize that the broken home, whether the result of death or divorce, is an evil from which we will suffer as a nation and as a race for generations to come and take steps to prevent it by proper education, we shall be on the road to success. For the home is the nest whence springs all future life, and for the sake of the future we should strive to keep it not only intact but pure.

To this end health must be stressed more and more as the years go on. Money in so far as the human race is concerned is but a means to an end, although one would scarcely think so listening to the deliberations of the average body of law makers. That the first duty of a statesman is the preservation of the health of the people has been considered a truism. It should be held seriously to be a fundamental reason and basis for government. Some wise person once said that the ideal government would be one composed of doctors and women. I submit that there may be something in the idea despite the recent decision of the government of the Province of Quebec anent votes for women. Certain it is that in the absence of sound public opinion the health machinery of our country will be weak. In the absence of good health machinery, including strong official departments of health, the great problems we are discussing cannot be solved. If they are not solved we will be slow in building up the strong race of Canadians we should have if we are to take our place among the great nations of the earth. For no nation is greater than the people who make up that nation, and no person is greater than his environment and his heredity permit. So that my final opinion is that the doctors and the women, who after all know more about these things than most people, should have more to say about it in the future than they have had in the past.

Mastoiditis Complicating Scarlet Fever

J. Grant Strachan, M.B., M.R.C.S.
Consulting Otologist, Isolation Hospital, Toronto

THE cases of mastoiditis complicating scarlet fever in the Isolation Hospital, Toronto, in the five year period, October, 1922, to October, 1927, form the basis for this paper. In 3,197 cases of scarlet fever, there were 437 cases of otitis media (approximately 13 per cent), and of these, 90, or about 20 per cent of the patients with otitis media, showed mastoiditis. (This number includes several cases of mastoiditis occurring in quarantined houses and admitted for operation.) The mastoiditis was acute in 58 patients and subacute in 32.

In a previous paper* it was pointed out that the treatment of ear, nose and throat complications of scarlet fever must have as an objective, firstly, the patient's immediate relief and future welfare, and, secondly, the rendering of the patient non-infectious in the shortest possible time. In the Regulations of the Department of Health, Ontario, isolation and quarantine must be applied in connection with all cases of otorrhoea following scarlet fever. The wisdom of this is not only apparent when enquiry is made into the source of infection in patients contracting scarlet fever, but is shown by the fact that virulent streptococci were cultured, with only one or two exceptions, from swabs taken from ten cases of mastoiditis following scarlet fever, and these streptococci produced toxin specific for the scarlet fever strain.

In the 90 patients with mastoiditis, 28 had a bilateral involvement, necessitating in all 118 operations. The number of operations in the various age-groups is shown in Table I.

Table I

Number of Operations in Various Age Groups

Under 1 year	— 6 operations	
From 1– 2 years	—31 „	
„ 3– 4 „	—36 „	
„ 5– 6 „	—19 „	92
„ 7– 8 „	— 6 „	
„ 9–10 „	— 3 „	
„ 11–12 „	— 5 „	
„ 13–14 „	— 3 „	
„ 15–20 „	— 4 „	
„ 20–30 „	— 5 „	26
		118 operations.

*Read before the Academy of Medicine, Section of Oto-laryngology, Toronto, March 12th, 1928.

It will be noticed that there were 92 operations on patients under 7 years of age and 26 on patients 7 years and over.

Of the 92 operations on patients under 7 years
51 were for acute mastoiditis and
41 „ „ subacute „

Of the 26 operations on patients 7 years and over
21 were for acute mastoiditis
5 „ „ subacute „

The greater proportion of the subacute type in the younger age groups is noticeable.

In referring to the different types of scarlet fever, the following clinical classification is used.

1. Simple.
2. Toxic—Constitutional symptoms are referable to the nervous and circulatory systems. Nose and throat involvement is comparatively mild.
3. Septic—Ear, nose and throat involvement is intense. There is a tendency to suppuration and ulceration of tissues and complications are frequent.
4. Malignant—Intense toxaemia and death within 48 hours. The diagnosis is seldom made.

The cases under discussion are confined to the simple and septic types.

SIMPLE SCARLET FEVER

1. Acute Mastoiditis. The immediate relief of the patient is the primary object in these cases.

Signs and symptoms indicating operation—Profuse, purulent, meatal discharge; post aural redness and swelling; tenderness; sagging of posterior meatal wall and roof near the drum membrane; pain and fever.

Operation—Simple mastoid drainage with thorough clearing out of all cells; antrum walls curetted and aditus enlarged laterally; partial closure of wound with tube drainage. The findings naturally varied with the type of bone, degree of cellular development and length of time the disease had been present. As in mastoiditis from other infections, an occasional peri-sinus abscess was discovered.

Post Operative Course—All cases, especially young children, with tonsils and adenoids had these removed as soon as possible after the mastoid operation,—usually in a week or ten days.

In 49, or 75 per cent, of the patients under 7 years of age, an operation for removal of tonsils and adenoids was performed.

In 7, or but 24 per cent, of the patients over 7 years of age, this operation was performed.

Complications—Bilateral facial paresis developed in an infant three weeks after operation, quickly clearing up after further curettment of the bones. There were no other complications and no deaths.

Results—An endeavour to arrive at the length of time required for healing was not attempted. Children with clean throats and adults usually healed quickly and uneventfully. All cases of delayed healing occurred in young children.

Of 55 patients coming to operation with acute mastoiditis, 46, or 84 per cent, were discharged cured and 9 were removed under quarantine. (The term cure is used in the sense of a healed wound and intact drum membrane or dry perforation.)

2. Subacute Mastoiditis—In these cases the chief concern is the rendering of the patient non-infectious, but the future of the patient as to deafness and possible intracranial complications must be kept in mind.

All cases of otorrhoea with no apparent mastoid signs are re-examined in the convalescent stage of the general disease. If tonsils and adenoids are present their removal is advised. Simple or operative treatment is outlined for cases with rhinitis. If after two or three weeks the otorrhoea persists, the patient is re-examined and if sub-acute mastoiditis is suspected, operation is advised.

Signs and symptoms indicating operation—Enlargement of the glands of the post cervical chain for no other apparent cause; profuse or moderate purulent or mucopurulent meatal discharge; redness and fullness of the posterior canal wall near the drum membrane; signs of septic absorption as indicated by the general condition of the patient, pulse and temperature.

Operation—Simple mastoid drainage. In no case as yet has the radical operation been indicated. As a rule the disease has been confined to the antrum and aditus, but often a great amount of necrosis had taken place.

Results—

Number of patients—32.

" " " cured—20, 63 per cent.

" " " removed under quarantine—12.

Delay in healing occurred more frequently in these than in the acute cases. The following factors are advanced as contributing causes to this delay:—

1. The majority, 41 of 46 operations, were performed in children under seven years of age.

2. The patients were much longer in hospital and more susceptible to acute infections which invariably meant fresh throat infections.

3. Post scarlet fever rhinitis is not uncommon in young children and is a definite factor in maintaining a middle ear infection.

It has been felt that a change of environment, fresh air, etc., *i.e.* removal to their own homes, if suitable, might be beneficial in improving the general condition.

SEPTIC SCARLET FEVER

It might be well to give a brief description of a typical septic case from the viewpoint of the oto-laryngologist.

This condition is distressing at any age, but is particularly so in young children. As a rule the patient appears very ill. He is restless with noisy breathing due to masses of muco-pus in the throat, trachea and bronchi. The face is dry and mottled red with cirum-oral pallor and the expression is anxious. The lips are dry, cracked and covered with sordes. A dry scum covers the teeth. The tongue is coated and swollen, the pharynx beefy red, markedly swollen and plastered with whitish membrance. Deep ulcerations of the palate and posterior pharyngeal wall may be present. Large, dirty, deeply ulcerated tonsils nearly close the pharynx. The nose streams muco-pus from excoriated anterior nares and the ears are usually discharging. The temperature is septic in type and well elevated. The mortality is high—of 33 patients, 19, or 56 per cent, died. External signs of mastoiditis usually manifest themselves early, with marked post aural swelling quickly going on to abscess formation. On account of the poor general condition it has been thought wiser to delay operation as long as possible.

Operation—Rapid simple mastoid drainage under light ether narcosis. In exposing the cortex the bone appeared dead white usually with a fistula. The cortex was thin and the cavity was large and honeycombed as though the bone were melting away. The opened cells were filled with foul greenish-white pus. There seemed to have been a fairly rapid absorption of the bone with no attempt at repair. There were no granulations and when the bone was curetted little bleeding occurred.

Results—Eight patients, all but one with double mastoiditis, came to operation. Four were discharged cured, one was transferred to the Hospital for Sick Children for laparatomy and transfusion, and three died, two from broncho-pneumonia and one from septic tracheitis.

Conclusions.

Acute Mastoiditis complicating scarlet fever should be dealt with in a similar manner to that from other infections regardless of the general infection present.

Subacute Mastoiditis should be searched for and actively treated if post scarlet fever otorrhoea, deafness and intracranial complications are to be restricted.

In conclusion I wish to thank Dr. Beverley Hannah and Dr. Edmund Boyd for their helpful criticism and valuable advice.

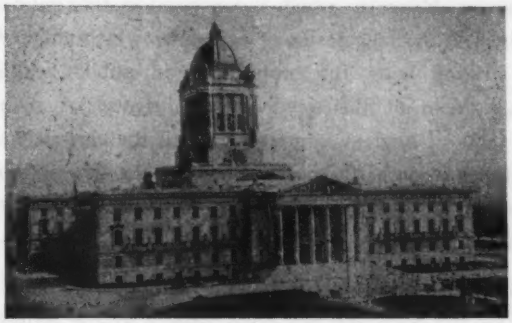
[1]Strachan, J. Grant. Ear, Nose and Throat Complications of Scarlet Fever. Canadian Medical Journal, 1924, Vol. XIV, p. 1089.

Winnipeg---17th Annual Meeting

OCTOBER 11th-13th, 1928

The Association's headquarters will be at the Royal Alexandra Hotel, which is one of the finest in Canada and is under the management of the Canadian Pacific Railways. *Reservations should be made direct with the hotel at once.*

The programme as published in the September issue reveals the splendid support which has been accorded the Association in planning this meeting. Representatives from every province have already signified their intention to be present and a large attendance is expected. Probably no meeting which the Association has had the privilege of calling has been of greater importance. The 17th annual meeting will be called on to decide the question of acquiring the JOURNAL and to give consideration to the plans for extending the activities of the Association to meet the changed conditions.



PARLIAMENT BUILDINGS, WINNIPEG, MAN.

Entertainment for the members has been most generously provided by the local committee, under the chairmanship of the Hon. Dr. E. W. Montgomery and with the assistance of Dr. A. J. Douglas, Medical Officer of Health of Winnipeg. On Friday at noon a civic luncheon will be tendered to our delegates by the Mayor and Council of the City of Winnipeg, and in the evening a reception by His Honour Theodore Burrows, the Lieutenant-Governor of Manitoba, will be held in the magnificent Parliament Building. Visiting ladies will find that the Committee are prepared to make their stay in Winnipeg one of the greatest enjoyment. It is hoped, therefore, that our visiting ladies attending the meeting will register their names promptly on arrival.

The local committee are pleased to arrange for small groups to visit places of special interest such as the Winnipeg General Hospital, St. Boniface and Misericordia Hospitals, the Universiay of Manitoba, the Provincial Department of Health offices and laboratories and the City Department of Health.

Editorials

THE HISTORY OF MEDICINE AND PUBLIC HEALTH

THE value of the discipline of the history of medicine in its relation to public health is revealed by a perusal of "Four Centuries of Medical History in Canada" by Dr. Heagerty which is reviewed in this issue. The lessons of history contained in the long series of epidemics which afflicted this country, afford many striking texts for propaganda in public health measures. The frightful toll taken of the early settlers because of their ignorance of the elementary facts of hygiene is attested by all the chroniclers of that period. A recent edition of one of these eyewitnesses—the description of Acadia by Marc Lescarbot in 1606—draws a vivid picture unexcelled for accuracy of clinical observation of the ravages of scurvy.

Perhaps some day, an enthusiast may write a general history of mankind in terms of public health. This has been partially done already by the writer who ascribed the fall of the Roman Empire, not to the accepted cause of invasions by barbarous hordes from the north, but to the decimation and deterioration of the dominant race by the malaria-bearing mosquito. An unvarying diet with insufficient accessory food substances may account for the high mortality and low resistance in many eastern countries to-day. The dietetic and sanitary ordinances of ancient religions offer historic data to explain the longevity of their cults. An examination of the records of isolated communities, isolated either geographically or culturally, such as Iceland, Jewry, the Douses, might solve problems in heredity. In the realm of mental hygiene, history and contemporary politics is instructive. In relieving the inferiority complexes of subject races by education, imperialists may be hoisted on their own petard—witness the Revolt of Asia, and Mother India. These are just a few suggestions of avenues of research, and possible points of contact between the historian and the student of public health.

TRAINED SANITARY INSPECTORS

IN the new county health units, the sanitary inspector is recognized as an essential member of the organization. Sanitation is the fundamental health need of the majority of rural and small urban communities. Those who live in the larger centres are apt to forget that sanitation has not kept a uniform pace throughout the land. In the United States, in the South, where the county health unit is making such rapid strides, it is their sanitary work which has such a popular appeal, because its results are so evident. In our country, we have not the problems of hookworm and malaria, and so our rural sanitation needs are not the same, nor do they offer such a field for spectacular work as do the southern states. There is, however, a real need for trained sanitary inspectors here. In the larger centres, the departments of health may feel quite capable of training their inspectors themselves. It would, however, relieve every department, small or large, of many of the difficulties they meet in refusing employment to undesirables, if they could say:—"We only consider those applicants who have qualified for the position of sanitary inspector". As long as the sanitary inspector is looked upon as an untrained man, as long as his job is thought of as one that can be filled by anyone, just so long will health departments and county health units be generally weakened by the poor quality of their sanitary inspectors. The fundamental need is the recognition on the part of sanitary inspectors and of those employing them, of the necessity for suitable training. Provision of courses of instruction can doubtless be arranged through the federal and provincial departments of health. The need is evident, and the Sanitary Inspectors' Association of Canada is to be heartily commended for its effort to improve the present situation. Discussion of this problem at the coming sessions of the Canadian Public Health Association should be profitable.

PUBLIC HEALTH ADMINISTRATION

M. M. SEYMOUR, M.D., D.P.H., LL.D., AND W. J. BELL, M.D.

CONVALESCENT SERUM IN EPIDEMIC POLIOMYELITIS

THE blood serum of monkeys which have recovered from an attack of poliomyelitis, induced by direct inoculation of the virus, contains immune substances having the power of neutralizing the virus of the disease. This fact was established eighteen years ago by Levaditi and Landsteiner, Romer and Joseph, and by Flexner and Lewis. Further, it was shown by these workers and by Anderson and Frost that the blood serum of human beings that have recovered from this disease contains similar antibodies. From these observations came the use of human convalescent serum in the treatment of the disease.

Attempts have been made during past years to prepare a potent antiserum by the injection of animals either with cultures of various micro-organisms which have been advanced from time to time as causative agents or with the virus of the disease as obtained from the tissues of inoculated animals. Unfortunately, such sera have been found to possess little or no neutralizing value for the virus, and, consequently, are of no specific value in treatment or prevention. We are dependent, therefore, on human convalescent serum for the specific treatment of this disease. Its value has been established by carefully controlled observations. These observations have confirmed the fact which was pointed out by those who first used this serum that serum must be given in the very earliest stage of the disease in order to be of value. When given early, in adequate quantity, and preferably intraspinally, paralysis is arrested.

These are the conclusions which have been arrived at by Aycock and Luther in recording their experiences in the treatment of one hundred and six cases with convalescent serum. In their valuable contribution to the study of the treatment of poliomyelitis, these authors draw attention to the fact that a very definite pre-paralytic stage can be recognized, being characterized by signs and symptoms of meningeal involvement. The whole effort in the treatment of this disease is naturally devoted to the prevention of paralysis. The value of convalescent serum has been established, but the essential feature, namely, early administration, calls for the diagnosis of the disease in the pre-paralytic stage. There is every reason to believe that if convalescent serum is properly administered in the pre-paralytic stage that the virus is neutralized before it can develop its maximum destructive effects on the motor nerve cells. The importance, therefore, of correct diagnosis before the onset of paralysis, is appreciated, and an extract from the paper of Aycock and Luther outlining the important points in the early diagnosis is given herewith:

*Preparalytic Poliomyelitis, Observations in One Hundred and Six Cases in which Convalescent Serum was used. W. Lloyd Aycock, M.D., and Eliot H. Luther, M.D., Boston. J.A.M.A. Aug. 11. 1928.

"The patient is taken sick with fever, headache and a gastro-intestinal disturbance, which usually consists of vomiting and constipation. Drowsiness and a desire to be let alone are also frequently observed. While these symptoms are fairly constant, the absence of one or more does not rule out the disease, and they are not characteristic enough in themselves to warrant a diagnosis.

"It is, then, the physical signs to which one must look for diagnosis, and these make the early picture of infantile paralysis a fairly characteristic one. On observation the child seems prostrated to a greater degree than the temperature, which is usually under 102 F., would indicate. The face is flushed, the expression is anxious, and there is frequently pallor about the nose and mouth. The throat is mildly infected, but not enough in itself to account for the child's condition. The pulse is usually rapid, out of all proportion to the temperature. The rest of the physical examination is negative, except for that portion which deals with the nervous system. There is frequently a rather coarse tremor when the child moves, which may be very striking. There is a distinct rigidity of the neck; however, this is not as marked as that usually seen in meningitis. The patient tilts the head on the neck but does not bend the neck on the shoulders. As a result, the head can be brought about half way forward, when resistance is encountered, and the child complains of pain. More constant and more characteristic than the stiffness of the neck is a stiffness of the spine. This is best brought out by having the patient sit up in bed and try to bend the head down onto the knees. The average child, ill with other infections, is very flexible and has no difficulty in doing this. If these patients bend forward at all it is from the hips, with the spine held rigidly. Many of them cannot assume a comfortable sitting position without propping themselves up on their arms. Anterior flexion of the spine often causes a drawing pain in the lumbar region. Kernig's sign is not usually marked at this stage, but the deep reflexes are frequently hyperactive rather than diminished, as they are later. A cerebral tache is almost always present, not infrequently becoming a purplish, irregular blotchy line a half inch or more in width. It is the presence of these signs and symptoms which justifies a probable diagnosis of anterior poliomyelitis and calls for the final step in diagnosis.

"This step is examination of the spinal fluid. The fluid is usually under moderately increased pressure (from 150 to 200 mm. of water). Macroscopically the fluid appears to be clear, but when viewed by transmitted light it presents a faint haziness which has been described by Zingher as a "ground glass". appearance. There is an increase in cells, usually between 50 and 250, but occasionally as high as 700 to 800, or as low as 20. These cells may be largely polymorphonuclear early, but later are lymphocytes. There is an increase in globulin."

In the treatment of the cases, two intraspinal injections of 15 to 20 ccs. were given on successive days. Intravenous injection was also used as a substitute for one of the intraspinal injections. The results obtained are encouraging. The authors concluded that the treatment had a favorable

effect when administered in the pre-paralytic stage, as shown by a low mortality rate, a low average total paralysis and a strikingly low paralysis of the more severe grades.

Recently Flexner and Stewart* published a report of important experiments which would indicate the possible value of convalescent serum in the prevention of infantile paralysis. Monkeys were protected against inoculation by the use of the serum. These investigators suggest the production of passive immunity in children at the time of a severe epidemic by the subcutaneous injection of from 10 to 20 cc. convalescent serum.

Co-operation of physicians, in obtaining supplies of serum from recovered patients, with hospitals and departments of health, and the early recognition of the pre-paralytic stage are essential if convalescent serum is to be made available and used efficiently.

Preparation of Convalescent Serum

Collection

From available information it would appear that the serum should not be collected earlier than one month from the acute stage of the illness, providing also that the temperature of the patient is normal. The serum is more potent when collected within a few months of the illness than after an interval of one or two years. In case no other serum is available, serum from patients who had the illness several years previously may be used as it probably has definite value though not so potent as that from more recently recovered patients. Quantities of blood withdrawn vary with the size of the individual but amounts from 200 to 800 cc. may be withdrawn. Payment at the rate of an ordinary transfusion is usually made.

Separation of Serum

It is essential, of course, that serum be obtained using sterile equipment and the blood should be received into sterile flasks and allowed to clot. If separation of serum is incomplete or portions become bloody, the serum should be placed in centrifuge tubes and clear serum obtained by centrifugalizing.

Use of Preservative

Since serum is to be used for the treatment of other individuals and may be stored for some time before use, it is recommended that a preservative such as 0.3% phenol or 0.25% of Schering's trikresol be used. The quantity of preservative used should be diluted in a small amount of saline and the diluted preservative should be pipetted into the flask of serum taking care that the flask is well shaken during the addition. A curdy precipitate forms and this necessitates clarification of the serum by filtration.

Filtration

For preliminary filtration, it is necessary to pass the serum through a Buchner filter before attempting to filter it through a Berkefeld candle. For a quantity of 500 cc. of serum a small Buchner funnel about 2″ in diameter is sufficiently

*Simon Flexner M.D., and Fred. W. Stewart, M.D., J.A.M.A., Vol. 91, p. 383.

large. The filter should be prepared using a boiled paper mash (filter paper torn into small pieces and boiled) and it should be dried by suction before the addition of serum. This is readily accomplished by fitting the Buchner funnel to a filter flask with a side arm and attaching it to a water pump. The serum is rendered quite clear by this preliminary filtration and it then can be filtered readily through a Berkefeld "V" candle. A small candle (2" in length and ¾" in diameter) should be used for a quantity of 500-1000 cc. of serum. The candle and receiving flask, of course, should be thoroughly sterilized before using. The filtered serum is then ready for bacteriological testing and if these tests are satisfactory, it can be bottled in 10 cc. vials. Final sterility tests should be made on one or two of the filled containers for every twenty-five containers filled.

Discussion of Method

The addition of phenol before filtration as described is an adequate safeguard and removes the necessity of doing Wassermann tests on the serum. It also makes possible the collection of serum by physicians outside the hospital under conditions which render it difficult to obtain blood in a strictly sterile manner and furthermore the addition of the preservative makes it possible to store the serum in vials for a period of months, if necessary, without danger of contamination. This is the method which has been found of value in preparing convalescent serum in quantity for measles as well as for scarlet fever and infantile paralysis.

Sterility Tests

It is desirable that sterility tests be made of the filtered serum before bottling. The following procedure is recommended:

Place 5 drops in glucose broth in a fermentation tube (a "U" shaped tube with a closed end). Broth should be freshly heated and cooled immediately before planting. A second tube should be planted with 20 drops and finally 3 cc. should be placed in a flask of broth (150 cc.), the tubes and flask incubated for 7 days, and observed daily for any evidence of infection. The test on filled vials should be made in the same manner using the same number of tubes and a flask for each vial tested.

Bottling

Sterile vials of 10 cc. are very suitable and rubber caps which have been thoroughly sterilized should be used.

EPIDEMIOLOGY AND VITAL STATISTICS

A. C. Jost, M.D., and Neil E. McKinnon, M.B.

Annual Report 1926—Ontario

THE Fifty-seventh Annual Report of the Vital Statistics for the Province of Ontario, being the report for the yera 1926, has been received. Like that for 1925, this report, presented by the Hon. Dr. Forbes Godfrey, Registrar-General and Minister of Health and Labour, is much smaller than the reports for previous years. This reduction in size has been acccomplished largely by the omission of the detailed tables of deaths for the individual counties and towns of over 5000 population, and cities with the exception of the four largest. Ready information, however, is given in the form of summary tables in the first part of the book. These tables are of vital interest to public health officials and physicians generally, who are interested in the state of the public health. The information in them could not be obtained from the more detailed tables without expending much time and effort. The tables are, in many instances, arranged so that a ready comparison with previous years and with other countries is possible. The list of contents is re-inserted at the beginning of the report and will be appreciated. The subjects covered in the summary tables include among others, tuberculosis, communicable diseases, infant mortality, maternal mortality, cancer and accidental death. While the smaller volume serves well the general purposes of the report, and the smumary tables are ample for most requirements, it is to be hoped that the detailed tables will be kept available for further study should the necessity for such arise.

The estimated population is given as 3,146,000, an increase of 1.13 per cent over the year 1925; the births as 67,617 with a rate of 21.5, a decrease of 1.1; and deaths as 35,909 with a death rate of 11.4, an increase over the rate of the previous year of 0.5. The infant mortality rate for the Province was 78.4 and that of the maternal mortality, 5.34 per 1000 births (including still-births).

In the *chief causes of death*, organic heart disease ranked first, the rate of 163.1 being the highest in the past ten years. Cancer ranked second with a rate of 99, which, too, is the highest recorded for cancer in the past ten years. Disease of the arteries took third place with a rate of 86.3 which, though lower than the rate for 1922 is a greater proportionate increase than either the cancer or organic heart disease rate. Pneumonia ranked fourth and tuberculosis fifth with a rate of 58.3, the lowest tuberculosis death rate in the history of the Province.

The summary of *infant mortality* shows that 22 per cent of infant deaths occurred under one day, and a further 19.6 per cent under one week, making a total of about 40 per

cent in the first week, while about 50 per cent occurred in the first month. Out of a total of 5,302 infant deaths, prematurity accounted for 1,572, malformation 481, and congenital debility, icterus and sclerema 410; respiratory diseases accounted for 662 (bronchitis 39, pneumonia 238 and bronchopneumonia 385) and diarrhoea and enteritis 531. The very great variation in the rates from 188.3 in Windsor and, 176.6 in Niagara Falls to 42.3 in Galt and 35.2 in New Toronto, is striking.

A comparison table for rural and urban distribution of *maternal mortality* for the past ten years shows well the persistently higher rates in the cities.

Age-specific rates are given for *cancer*. These show a definite increase in 1926 in each age group over the average for the previous five years.

In the *Communicable Diseases* group (apart from tuberculosis and influenza) whooping cough had a rate of 7.8 accounting for 245 deaths in 1926, while diphtheria with a rate of 7.2 accounted for 227 deaths. Measles had a rate of 4.5 with 156 deaths and typhoid a rate of 2.4 with 76 deaths, the lowest in the history of the Province.

The table of accidental deaths given in the report, is very typical of the period. While drowning shows the highest rate for each year, automobiles are assuming vastly more importance. The year 1917 shows a death rate due to automobiles of 1.77, while the year 1926 has a rate of 7.96 or practically four times that of 1917. No other cause has increased in anything like proportion.

REPORTED CASES OF CERTAIN COMMUNICABLE DISEASES IN CANADA BY PROVINCES—AUGUST, 1928

Diseases	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
Diphtheria....	24	12	145	157	72	30	34	43
Scarlet Fever..	13	15	141	67	64	60	56	22
Measles.....	1	4	20	265	135	28	10	41
Whooping Cough.....	44	8	33	430	45	42	19	15
German Measles.....	7	—	*	—	*	6	—	2
Mumps.....	—	—	*	171	10	24	7	14
Smallpox.....	—	3	34	5	—	6	35	59
Cerebrospinal Meningitis..	—	—	4	2	—	—	2	—
Anterior Poliomyelitis	—	1	6	3	99	—	16	24
Typhoid Fever	—	18	103	79	13	7	8	22

*Not reportable.

POLIOMYELITIS

The Table below shows the Reported Cases of Poliomyelitis in the Various Provinces for certain periods of 1927 and 1928.

	July 1927	*July 1928*	August 1927	*August 1928*	September 1927	*Sept. 1 to Sept. 15, 1928*
British Columbia	—	*10*	29	*24*	91	*
Alberta	1	*3*	18	*16*	187	*15*
Saskatchewan	—	*2*	1	—	3	*
Manitoba	—	*9*	1	*99*	3	*145*
Ontario	3	*3*	3	*3*	10	*13*
Quebec	—	*1*	1	*6*	2	*10*
New Brunswick	—	—	—	*1*	—	—
Nova Scotia	1	*3*	3	—	13	—

* Report not received.

PUBLIC HEALTH NURSING

RUBY M. SIMPSON, REG.N., AND FLORENCE H. M. EMORY, REG.N.

THE DEVELOPMENT CLINIC FOR THE PRE-SCHOOL CHILD

THE care of the child of this age has long been vested with the parent and those interested in public health, nor does it seem likely that others will attempt to invade this field if public health authorities keep abreast of the vast amount of information made available by those interested in the child and his parents.

Much of the child hygiene work gets little beyond the correction of defects and prevention of communicable disease as it concerns the child who has passed his first birthday. The parent gets little of the enthusiasm from the physician and the nurse which was so freely given while the child was still an infant, when the mother was frightened of his dying and was only too glad to share the responsibility with somebody. When this stage is reached we slacken our care, partly because we want to devote our main energies to lowering our infant death rate, partly because the mother is not reached so readily by the methods which worked fairly well when she had an infant, but also very largely because public health workers are not familiar enough with the problems every parent has with the pre-school child, nor how they may best be treated.

Malnutrition has been frequently discovered at the ordinary health conference examination, and diets prescribed, but how often has the mother failed, owing to lack of instruction in how to get the child to take the food. Habits of elimination have been talked about to the mother, without our having clear ideas on how and when they may best be formed. It is doubtful if the enuresis cases have been materially lessened through the work of the ordinary health centre conference. The crying baby problem has been usually tackled by either

giving more or less food, as we in our judgment decided in the case, while frequently there were circumstances in the family which were solely responsible for the restless infant, but the routine of the ordinary health conference did not allow for intensive investigation.

Prompted by the lack of information available in connection with the development of the average child in the average home entered by the public health nurse, it was decided to start a clinic in connection with the Child Welfare Association of Montreal, where an intensive study of the outstanding cases of faulty development might be made, and at the same time to have a research programme to secure information regarding how best the child may be taught the essential health habits. It was well understood that mentally defective children were to be excluded, and non-co-operative parents were not invited to this clinic. As most of the low grade parents fall in this latter class we were not troubled with moron parents. The upper age limit for the children was set at five years, as we are convinced that this is the oldest child we can handle with the staff at present available. Only the children in which the primary trouble is a faulty health habit were admitted.

Space does not permit of going into the type of training the personnel should have for such a clinic. No doubt it should include a physician, psychiatrist, psychologist, dietitian, social worker, and public health nurse, but the essence of the experiment is to show what could be accomplished by the staff usually included in a public health nursing organization. We had available a pediatrist who had been interested in nursery school work and child psychology for a number of years, a public health nurse who had had special training in child psychology and nursery school methods and a dietitian who had two years' experience in a nursery school. The whole staff understood the home, that the public health nurse visits, and the problems of the average parent. There was never a marked division of labour as right from the start it was seen that each could contribute to every case. As far as possible the dietitian was given the food problems, while to the public health nurse were allotted the problems of elimination and sleep. Very extensive records were kept for each case with special reference to the development of the difficulty presented.

As this clinic has been in progress for nine months, only a brief report is given, but the following conclusions may be of interest. There is not a doubt in our minds that the work is well worth while, that it can be accomplished by a public health nursing organization and that a vast amount of information about the child and parent can be secured in this way by a personnel who has already the confidence of the parent.

Tentative Conclusions:

(1) Problems had been present for a long time during the first year, but the mass method of the ordinary conference allowed no time for their study and care. Bad health habits were formed which the parents had taken philosophically, had made up

their minds to put up with, and frequently had attributed to heredity, teething, digestive disorders, etc. For example: Baby "B", age 10 months, has a sleeping difficulty. He is put to bed at 7.30 p.m. He does not sleep till 8.30 p.m. The mother sits by the bed. He sleeps till 10 but the least noise awakens him, so that the household has to be perfectly still. At 10 p.m. he demands attention. The mother stays with him until 12. He may sleep till 3 a.m. holding his mother's hand. If she stirs, he is awake. At 3 he is ready to play till 6 a.m. or protest vigorously if left alone. A radio in the house has never been used as it "disturbs baby". The father is away all day and stays out in the evening as he finds the atmosphere of home too strained. He is very co-operative but feels that the baby takes too much of his mother's attention. This attitude on his part is increasing the mother's anxiety.

With intensive supervision the parental attitude and home situation were completely changed. The baby now sleeps in a room alone at proper intervals without disturbing the family routine. He is not disturbed by the radio or any ordinary noise in the house. The mother had attended the Health Centre since the baby was one month old, but there the effort was directed to the difficulty rather than the total home situation which caused it.

(2) Adequate attention has not been given to the development of health habits in children of this age.

(3) Public health training schools and medical faculties should include the study of the development of the pre-school child in their curriculum.

Signs of the success of the Clinic:

(1) The marked appreciation of the parents.
(2) Almost uniformly good results.
(3) The desire of the parents for further study and the zeal they show in joining groups formed for parent education.
(4) Cases frequently referred by parents who had already attended the clinic.

A. B. Chandler, M.D.

Success in the Maritimes

The second annual Refresher Course for Graduate Nurses, given under the auspices of Dalhousie University, was held from June 25th to 29th inclusive. Lectures were given in the lecture theatre of the Public Health Clinic, and the various hospitals in the medical unit surrounding the Medical School assisted materially by giving demonstrations and allowing for observation work within the institutions.

The nursing group and the University feel particularly favoured in having had Miss Mary Beard of the Rockefeller Foundation give several lectures in this course. Miss Beard was in Halifax officially for other reasons, but very graciously, though unofficially, gave of her energy, time and inspiration to the course. Two lectures were given to the nurses alone, another at an evening session at which a number of doctors and interested laymen were the guests of the nurses, and the fourth to a group of about one hundred pupil nurses of local hospitals.

Miss Beard, in a most inspiring

manner, unfolded the great possibilities and the fascination of real nursing in its many branches, showed the challenge thus presented to each member of the profession and led up to a general discussion on nursing education. Frequent reference was made to the recent and most interesting report of a study of the economics of nursing conducted by the Committee on the Grading of Nursing Schools and published under the title Nurses, Patients and Pocketbooks, by May Ayres Burgess, the Director of the study.

The programme was planned to provide variety, not only that it might appeal to nurses engaged in various types of nursing but also that each particular group might keep in touch with the work of sister groups within the profession. Members of the medical faculty of Dalhousie University, nurses and others, very willingly contributed through lectures, demonstrations and round-table conferences.

One hundred and one nurses registered for this course, including a number of nuns and a good representation from New Brunswick and Prince Edward Island, as well as various sections of the province of Nova Scotia.

A. Edith Fenton.

NATIONAL VOLUNTARY HEALTH AGENCIES

JEAN E. BROWNE, REG.N.

HEALTH HABITS

Attempts have been made in the schools to give instruction to the children on certain preventive health measures essential to their well-being. This has been gradually recognized as being too complicated, not well enough balanced and not fitted to the child's mind. It seems obvious that there is no necessity to go into long dissertations to children. It is the practice of the laws of healthy living that is essential.

In general, our Canadian children eat enough, and, generally, their meals are fairly well balanced. They do need, however, to develop habits of good nutrition and health such as those outlined in the following Rules of the Health Game issued by the Junior Red Cross:

1. Eat plenty of whole cereals, vegetables and fresh fruit every day, but not much meat.
2. Drink at least two glasses of milk and four glasses of water every day but no tea or coffee.
3. Sleep with the windows open or in the open air. Be in bed at least ten hours every night.
4. Be regular every day in going to the toilet.
5. Play out-of-doors every day.
6. Hold the body straight while sitting or standing.
7. Brush the teeth every night and every morning.

8. Take a warm bath at least once a week.
9. Wash the hands before touching food and after using the toilet. Keep the finger nails clean.
10. Use a handkerchief over the mouth when coughing or sneezing.
11. Keep fingers, pencils, pens, erasers and rulers away from the mouth and nose.
12. Do not spit. Use a handkerchief.

NEWS AND COMMENTS

P. A. T. SNEATH, M.B., D.P.H.

CONNAUGHT LABORATORIES FELLOWSHIPS

THE Connaught Laboratories of the University of Toronto, in 1927 made provision for the granting each year by the University of Toronto, of two or three Fellowships in Public Health in the School of Hygiene. The object of these Fellowships is to increase the number of trained public health workers in Canada. They are of the value of $1,500 and are tenable for one year. Appointment to a Fellowship is made by the Board of Governors of the University of Toronto upon the recommendation of the President, who is advised by the Director of the Connaught Laboratories. A candidate is proposed by the executive officer of a Provincial Department of Health.

During 1927-28, Dr. R. Felton, on the nomination of Dr. H. E. Young, the Provincial Health Officer of British Columbia, was awarded a Fellowship, obtaining the Diploma in Public Health in June last. In view of the granting of only one Fellowship last year, an exception has been made for the 1928-29 session in the appointment of four Fellows, namely: (1) Dr. R. B. Jenkins of Edmonton, Alta., on the proposal of the Deputy Minister of Health of Alberta, Dr. M. R. Bow; (2) Dr. F. W. Jackson of Winnipeg, Man., on the nomination of the Hon. Dr. E. W. Montgomery, Minister of Health and Public Welfare of the Province of Manitoba; (3) Dr. F. S. Leeder, Battleford, Sask., nominated by Dr. M. M. Seymour, Advisor in Public Health to the Department of Health, Saskatchewan; (4) Dr. Eva Mader, Kentville, N.S., on the nomination of the Provincial Health Officer of Nova Scotia, Dr. A. C. Jost.

SUN LIFE SCHOLARSHIP TOUR

THE following medical men sailed August 25th, by the R.M.S. Regina for the Scholarship Tour of Europe arranged through the Canadian Tuberculosis Association by the generosity of the Sun Life Assurance Company of Canada:—Dr. B. F. Miller, Kentville, N.S.; Dr. H. A. Farris, East St. John, N.B.; Dr. R. J. Collins, River Glade, N.B.; Dr. J. A. Couillard, Lake Edward, P.Q.; Dr. F. L. Phelps, Ste. Agathe des Monts, P.Q.; Dr. D. A. Carmichael, Ottawa, Ont.; Dr. B. H. Hopkins, Kingston, Ont.; Dr. W. J. Dobbie, Weston, Ont.; Dr. W. B. Kendall, Gravenhurst, Ont.;

Dr. C. D. Parfitt, Gravenhurst, Ont.; Dr. J. H. Holbrook, Hamilton, Ont.; Dr. J. H. Pratten, London, Ont.; Dr. E. N. Coutts, Kitchener, Ont.; Dr. D. A. Stewart, Ninette, Man.; Dr. A. B. Alexander, Winnipeg, Man.; Dr. R. G. Ferguson, Fort Qu'Appelle, Sask.; Dr. N. C. Boughton, Saskatoon, Sask.; Dr. A. H. Baker, Calgary, Alta.; Dr. A. D. Lapp, Tranquille, B.C.; Dr. T. M. Sieniewicz, Halifax, N.S.; Dr. P. S. Campbell, Halifax, N.S.; Dr. G. J. Wherrett, Moncton, N.B.; Dr. Georges Gregoire, Quebec, P.Q.; Dr. Herve Beaudoin, Three Rivers, P.Q.; Dr. E. S. Harding, Montreal, P.Q.; Dr. J. A. Jarry, Montreal, P.Q.; Dr. G. C. Brink, Toronto, Ont.; Dr. A. S. Lamb, Victoria, B.C.; Dr. J. H. Elliott, Toronto, Ont.; Dr. G. C. Anglin, Toronto, Ont.; Dr. R. E. Wodehouse, Ottawa, Ont.

Drs. Harold Parsons and R. M. Price of Toronto, and Dr. Stuart Pritchard of Battle Creek, Mich., in addition to members of the families of the official members, are included amongst the sailing list of the White Star Line.

The American Public Health Association

THE American Public Health Association is holding its fifty-seventh annual meeting this year in Chicago, Ill., from October 15-19. Two other national health organizations, the American Child Health Association and the American Social Hygiene Association, are holding their annual meetings in conjunction with the A.P.H.A.

The programme is of a most comprehensive nature, and in addition, to the many sessions permits the inspection of the interesting features of Chicago's organization for promoting public health. Special sections have been arranged for the discussion of cancer, epidemiology, dairy products and training for public health work.

The president of the Association is Dr. Herman N. Bundesen, and the headquarters of the meeting will be the Stevens Hotel.

Nova Scotia

THE Association of Medical Officers of Health of Nova Scotia will hold its annual meeting during the week of October 8th, joining with the Nova Scotia Medical Association which is celebrating the 75th anniversary of the establishment of the Medical Faculty of Dalhousie University. The meeting will be held in the new Lord Nelson Hotel.

Dr. James A. Doull, a native of Nova Scotia and graduate of Dalhousie University and now Associate Professor of Epidemiology in the Johns Hopkins School of Hygiene and Public Health, is to be in charge of the investigation of the etiology of common colds.

A writ has been issued against the town of Stellarton by the husband of one of the victims of the typhoid epidemic last winter. The husband claims $15,000 damages for the death of his wife, and maintains that sufficient care was not taken to prevent infection of the town water. It is possible that similar actions will be instituted by others.

Québec

ANOTHER county unit has been established in Chicoutimi County with headquarters in the town of

Chicoutimi. The town will contribute $600 per anum, the balance of the bugdet being made up by the Provincial Government, the Rockefeller Foundation and the various parishes of the county. The City Council of Chicoutimi is requesting that toxoid be supplied for immunization against diphtheria.

Ontario

AT the last annual meeting of the Ontario Medical Association, it was decided to make a survey of the Province concerning mental hygiene, and for this purpose the Association has sent out a questionnaire. This appears to be most comprehensive, dealing with the practitioner's experience in the management and treatment of nervous and mental cases, hospitals, committments, and his opinions on the special needs of medical education in this field. It requests suggestions for improvements and statements of particular difficulties met with in practice. The consensus of opinion derived from this, should provide valuable information for the use of the Association.

Members of the Association will be sorry to learn of the illness of Dr. H. C. Cruikshank who was formerly Deputy Medical Officer of Health, Toronto, and now Medical Director of the Manufacturers Life Insurance Company.

Manitoba

THE President of the Manitoba Medical Association, Dr. H. Lewis, at the annual meeting, deplored the high cost of the diagnosis and treatment of disease. He pointed out that the solution of this problem must be developed within the profession itself. The official representatives of the Canadian Medical Association were Dr. J. C. Meakins, Montreal, Drs. A. Primrose and R. R. Graham of Toronto, each of whom addressed the members.

The agreement for the provision of old age pensions for Manitoba has been completed and signed by the Province of Manitoba and the Federal Government.

The Health and Hospitals Committee of the Welfare Supervision Board has completed the tuberculosis survey in Manitoba and the data have been turned over to Mr. M. P. Morrison, actuary of the Monarch Life Insurance Company, for analysis. On completion of Mr. Morrison's report, Hon. Dr. E. W. Montgomery, Minister of Public Health and Welfare, will have the necessary legislation drafted to remedy the existing conditions. This legislation will be introduced at the next session of the legislature.

Saskatchewan

THE third annual meeting of the Public Health Officials Association of Saskatchewan will be held in Saskatoon during the week of October 8th under the presidency of Dr. Arthur Wilson, Medical Officer of Health of Saskatoon. A large attendance is expected.

British Columbia

THE Department of Labour shows that up to June 30th last, 3,150 persons in British Columbia have participated in the old age pensions scheme, having been in receipt of $441,122.97, one-half of which was supplied by the Federal

Government. Twenty-two per cent of the Province's population over the age of 70 years are participating in the benefits, the average monthly disbursement being $17.47 to 1,871 males and 1,279 females. The number of pensioners affected by the Act in British Columbia who have previously been residents of other provinces, are 18 from the Yukon, 257 from Alberta, 157 from Saskatchewan, 179 from Manitoba, 271 from Ontario, 37 from Quebec, 75 from Nova Scotia and 10 from Prince Edward Island. Such provinces as are or will be included under the scheme will be assessed for a proportionate amount of the money paid by British Columbia to former residents of the respective provinces. These pensioners represent property of the value of $1,520,782.58.

In addition to British Columbia, Saskatchewan has been paying pensions since June. Manitoba completed arrangements for effecting the scheme about the middle of August, and the Yukon also will shortly be paying to its pensioners.

Dr. J. W. McIntosh, Medical Officer of Health of Burnaby, B.C., has left for Toronto to do post graduate study in public health in the School of Hygiene.

Dr. H. W. Hill has been named one of the Royal Commission appointed to inquire into the milk situation in the Province of British Columbia.

At the convention of the Sanitary Inspectors Association held in Vancouver during the first week of September, Dr. W. S. Hague of Winnipeg was re-elected as president, and Mr. Alex Officer of Winnipeg, secretary.

OBITUARY

Major J. W. Hunt, M.B., M.R.C.S., L.R.C.P.

DR. HUNT, who was attached to the Provincial Department of Health of Ontario as Clinical Specialist in the Division of Preventive Diseases, died following an operation on July 24th, at the age of 44 years.

Born at Parry Sound, he received his primary and secondary education in the public schools of Blind River and Albert College. He entered Toronto University in 1903, graduating with the Class of '07. His unfailing good humour and attractive personality were evident during his university course and he was conspicuous for his ability as an extemporaneous speaker. Following graduation, he spent a year in London, England, when he obtained the degrees of M.R.C.S. and L.R.C.P. Upon his return to Canada, he spent some time in practice in Northern Ontario, ultimately settling in Sault Ste. Marie, where he engaged in general practice until 1914.

Dr. Hunt enlisted in the C.A.M.C. in August, 1914, and after serving for a year in Canada, went overseas in October, 1915. He served in France as Senior Officer in charge of a Cavalry Field Ambulance, obtaining the rank of Major. He was severely

wounded at the Battle of St. Quentin on March 24th, 1918. He was attached to the Medical Staff of Christie Street Hospital for a year, following which he entered the service of the Provincial Department of Health as Clinical Specialist, which position he held at the time of his death. The characteristics which made him popular with his fellow students stood him in good stead in his contact with his colleagues and the public, and his loss will be deeply felt by all those who had the opportunity of knowing him.

BOOK REVIEWS

D. T. FRASER, B.A., M.B., D.P.H. and R. R. MCCLENAHAN, B.A., M.B., D.P.H.

Four Centuries of Medical History in Canada—By John J. Heagerty, M.D., D.P.H., Department of Health, Canada. Toronto, The Macmillan Company of Canada, Limited, at St. Martin's House, 1928. 2 Volumes. pp. 769. Price $12.00.

This comprehensive and scholarly work of Dr. Heagerty adequately supplies what has long been a desideratum, namely, a complete and reliable history of medicine in Canada. We have had partial and local histories, but nothing approaching in extent and detail to this authoritative and interesting work of reference. It will prove to be a mine of information and an indispensable guide and standard for all future medical historical research in Canada.

Dr. Heagerty was peculiarly fitted to engage upon this onerous undertaking. He had access to the Dominion and provincial archives and has unearthed rare Canadiana which have thrown light on the early practice of medicine in this country. In reading these two ample volumes one finds with delight how fascinating is the story of the progress of medicine in Canada and how charged with romance were the lives of many of its practitioners.

There are two outstanding appeals which this work offers to two differing types of readers, or to the same reader in two moods; there is the appeal of instruction in our historical background, mingled with gratification of the academic taste for anecdotal biography dressed in good literature. Most of the first volume is of this character. The other appeal, of a duller and perhaps more useful service, is to the research student seeking for information regarding the origins of our manifold medical activities, societies or institutions.

Part I, entitled EPIDEMICS OF DISEASE, deals with the successive waves of epidemics which ravaged the infant colony like a series of Egyptian plagues. Scurvy, smallpox, plague, typhus and cholera exacted a frightful toll, and the story of heroism of the early settlers and missionaries reads like an epic. As with political history, the Jesuit relations are a mine of information, and from the medical point of view, a new and illuminating searchlight sheds added lustre to the deeds of heroism of these apostolic men.

The first plague to scourge the new settlers was scurvy, an affliction common to all adventurers in those days. The suffering from this so-called *mal de terre* (which might with equal propriety be termed *mal de mer* as it was universal on all far-faring ships) among the early colonists, especially at Miscou Island, was atrocious. Improper diet and housing decimated the population during the winter months. It is curious to read how the natives combatted this disease by exhibiting an infusion of the bark and sap of the hemlock (*l'épinette*). Vinegar was rationed out to the troops as an antiscorbutic.

Closely following in the wake of scurvy, smallpox, in its most malignant form, attacked the colonists and in large areas almost exterminated the Indian. This calamity, in so far as it affected the native, seemed to some of the pioneers an event greatly to be desired, and occasioned friction between missionary idealism and political expediency. Knowing the havoc to the morals wrought among the savages by the use of strong liquor, Bishop Laval forbade the selling of brandy to the Indians, but Frontenac was minded to permit the traffic as a necessary measure in competition for fur trading with the English, who were unhampered by such conscientious scruples. Benjamin Franklin opined "that rum was created by the Almighty to kill off the Indians and bring the land into the possession of the white race". Several times in these early days an opportune epidemic had sufficed to turn the scale in the ceaseless wars between the rival European nations for the possession of the New World. Smallpox dramatically stopped the French conquest by means of the Crees and Assiniboines against the Sioux in 1738, and again by means of the Chippewas against the English in Ohio in 1752. In 1690 an outbreak of smallpox among Phips' New England troops before Quebec saved New France for nearly a century. Sir Jeffery Amherst in the matter of the Pontiac conspiracy valued smallpox as an ally. In a letter to Colonel Bouquet he writes, "Could it not be contrived to send smallpox among these disaffected tribes of Indians?" The aborigines seemed to be peculiarly sensitive to smallpox, and among them it often assumed its most virulent form—the haemorrhagic type. Europeans, though they suffered severely, by comparison, possessed a certain degree of immunity. This circumstance drew the suspicion and enmity of the natives against the Jesuit missionaries, whom they blamed for introducing and spreading this terrible malady. Their fears were confirmed by the practice of the fathers, always zealous to add another soul to the kingdom of heaven, of baptizing any children who were at the point of death. The not-unreasonable conclusion of the ignorant relatives was that the rite of baptism killed their children. We read in the "Relations" that the Jesuits realized their danger and only their tremendous faith stimulated them to continue in this hazardous practice.

A unique document which is in the possession of the Dominion Archivist, Dr. Doughty, is the book of instructions regarding vaccination sent by

Dr. Jenner to the Chief of the Five Nations Indians, with an inscription in Jenner's handwriting on the fly-leaf. The letter of appreciation from the Five Nations Indians at Fort George to Edward Jenner, dated November 8th, 1807, is reproduced and its touching simplicity is worth preserving.

"Brother, our Father has delivered to us the book you sent to instruct us how to use the discovery which the Great Spirit made to you, whereby the smallpox, that fatal enemy of our tribe, may be driven from the earth. . . . We send with this a belt and string of wampum in token of our acceptance of your precious gift, and we beseech the Great Spirit to take care of you in this world, and in the land of spirits".

Where is the string of wampum preserved now? Previously to the introduction of vaccination, the only remedies the Indians possessed consisted of an infusion of the pitcher plant (Saracenia purpurea, described by Dr. Michel Sarrazin) and an original form of the Turkish sweating bath. It is interesting to note that the latest instructions from the Department of Health as to the method of vaccination revert to the original Jennerian method of puncture, superseding the unsightly process of scarification.

Some idea of the devastation caused by smallpox before the general use of vaccination, may be obtained by considering a few statistics. In 1702, 3,000 citizens of Quebec, that is about 1/4 of the population, died of smallpox. Again in 1733, nearly 2,000 died in the same city. The year 1755 is remembered as the "Smallpox Year", when the disease extended its ravages from Halifax to Niagara. In 1783 once more Quebec City suffered severely, 1,100 of its population dying from this one disease. One would suppose that a series of such tragic experiences with the deadliness of smallpox would dispose the people favourably towards any means of combatting or ameliorating its ravages, yet Quebec resisted bitterly, even to the extent of riots, the introduction of both inoculation with smallpox (1765) and, in modern times, vaccination.

Col. Landman at Quebec seems to be the first to inoculate with cowpox in the years 1801-02. Some three or four years previously (1798) the Rev. Dr. John Clinch, of Trinity, Newfoundland, received a supply of vaccine from Dr. Jenner, who had been his former fellow student. No one, however, would submit to the new preventive, and finally he persuaded his unwilling nephew, aged 17, to undergo vaccination. Shortly after he placed this young man in the same bed with a smallpox victim, and when the former did not contract the disease, the sceptics were convinced and straightway crowds applied for this protective measure, so temerariously vindicated. The last great outbreak of smallpox in Canada, 1875-1885, occasioned the acrimonious controversy, aroused by the opposition of the French population, headed by Dr. Coderre, especially in Montreal, against the practice of vaccination. The ill-feeling culminated in 1885 in actual riots in the metropolis. Sir Wm. Osler, then physician of the

Montreal General Hospital, was active in the campaign and reported 260 cases in the Canada Medical and Surgical Journal of 1876. The French portion of the city who refused vaccination suffered terribly, but eventually such facts as this, that in one week, of the 245 deaths in the city, 226 were unprotected French, convinced the most intransigent, not, however, before the mortality reached 3,164 in Montreal for the year 1885. In quoting the French record I must quarrel with Dr. Heagerty over a trifling matter. Surely the French "ancien" should be translated "former" and not "ancient".

In the chapter on Ship Fevers a variety of diseases is included, but probably typhus was the one most commonly encountered. What a pity that in watching for the arrival of ships from the old land, emotions of joy and welcome should be clouded with the dread that death was lurking in the form of some terrible plague. Almost every troop ship from France, shortly before the English occupation, was infected with ship fever.

The climax of epidemic of this class was reached in 1847 when the avaricious ship owners herded the famine stricken immigrants from Ireland into their inadequate and unsanitary cattle boats and dumped them into Quebec. The recital of the figures alone is appalling. Of the 98,000 souls who embarked, one-seventh died before they landed, and one-third had to be received into hospitals.

The quarantine station at Grosse Isle became a graveyard for thousands of Irish settlers. The monument erected there is a reminder to the savage cruelty and avarice of the shipowners of those days.

The mal de la Baie St. Paul, which was endemic in that locality from 1775-1786, baffled for a time the resources of the government and the physicians. From accounts now available of the symptoms it seems quite clear that this malady was none other than syphilis.

Epidemics of cholera in the early 19th century exceeded in destructiveness the earlier smallpox. It was of course brought in by the ships conveying immigrants. In the year 1832, when the first extensive cholera invasion occurred, 51,700 new settlers arrived in Canada. The brig Carricks arrived on June 3rd at Quebec, having buried 45 of her passengers en route. The sick were removed at the quarantine station, but no effort was made to isolate the contacts. The result was that 2,208 deaths from cholera from the city of Quebec alone ensued that year, and in Montreal 4,000 people died out of a population of 27,000.

In an interesting little book entitled "Trifles from My Portfolio", by a staff surgeon, published at Quebec in 1839, an account is given of the treatment of cholera at Kingston. Bleeding was employed universally, but the new feature was the injection into the veins of a solution of salt.

Toronto was visited by cholera in 1834, and it is reported that 4,000 people fled the city, and that in 19 days the total number of deaths reached 342. It must be remembered that the population of Toronto at that time was not much more than 10,000.

In 1854, another epidemic of cholera visited Toronto. It was during this visitation that the celebrated intravenous treatment with milk was employed by Dr. James Bovell. Six patients were given this treatment of from 8 to 12 ounces of fresh milk transferred directly from the animal to the patient. As two of the six recovered, the mortality was not more than the average.

Part II deals with PIONEER PHYSICIANS and one or two will be mentioned as representative.

The first physician in Canada was probably Deschamp of Honfleur, who was with Champlain in 1606. As to who was the first settler-physician, either Louis Hébert or Dauret Hay may be chosen.

René Goupil, a physician who accompanied the Jesuits on their missions, should be honoured not only as a physician but a martyr. Taken prisoner along with Fr. Jogues by the Mohawks at some place near Schenectady, "he suffered long and cruel torments, and for having made the sign of the cross on a child he was killed by the parents, dying at the feet of Fr. Jogues".

Dr. Michel Sarrazin, 1659-1734, was pre-eminently the most famous physician of early days. A notable study of this celebrated Canadian physician and naturalist appeared last year entitled "Michel Sarrazin, 1659-1735, un biologiste Canadien", by Arthur Vallée of Laval, published at Quebec 1927. It was awarded the Prix David d'histoire du Canada 1926. This work is not quoted in the bibliography. He wrote many articles on the natural history of his adopted country which he communicated to the Academy of Sciences, of which he was a corresponding member. Among other topics he discussed the anatomy of the beaver, moose and porcupine, the making of maple sugar, and a description of the pitcher plant and its curative properties for smallpox. The botanical name of this plant has been given as Sarracenia purpurea in his honour.

Another Canadian physician immortalized in botanical nomenclature is Dr. Jean François Gaultier (1708-1756), King's physician for Canada, after whom the wintergreen plant "Gaultheria procumbens" is named.

Timothy Sullivan (1708-1756) came from Ireland to New France long before there was any immigration from that island. He practised medicine in Montreal from 1724-1748, having received papers of naturalization, and a brevet licensing him to practise medicine, under the direction of Sarrazin. Facsimiles of both these interesting documents are given.

The mere mention of the names of early physicians in Ontario conjures up historic and romantic associations. MacAuley, Widmer, Rolph, Dunlop and Workman all left their mark indelibly in the history of this country. To cover each part in the detail which the subject deserves would spread this review, already too long, beyond endurable limits. There is one phase, however, under the caption of *Hospitals* from which one cannot refrain from adverting. The history of the Hôtel Dieu founded at Quebec in 1639 is of absorbing interest. It owed its existence to the noble inspiration

of the Duchess d'Aiguillon, who conceived and financially supported the institution in its early days. By her generosity she was instrumental in sending to the infant colony those angels of mercy, the nursing sisters drawn from Les Réligieuses Hospitalières de la Miséricorde de Jésus of Dieppe, together with three Ursuline Sisters. Their arrival at Quebec August 1st, 1639, was acclaimed with joy and gratitude, and this incident has been preserved in a well-known painting.

The same month of their arrival their hospital was overwhelmed with 180 white patients and 200 Indians.

The heroic story of their early days has been recorded by one of their members, Soeur Jeanne, Françoise Juchereau, who entered the Hôtel Dieu in 1662 at the age of 12. Her "Histoire de l'Hôtel Dieu de Québec", published at Montauban in 1754, is a running commentary on patients and events from 1639-1721, and an invaluable treasure of Canadiana.

The spirit which founded this earliest of Canadian hospitals has not altogether disappeared. In the early years of the 19th century one Jean Baptiste Gamelin and his wife, being childless, adopted as their own an idiot. When M. Gamelin was dying he charged his wife, "Continue de prendre soin de cet infortuné, en souvenir de moi et pour mon amour". His widow magnificently fulfilled his wishes. She founded a religious order, the Sisters of Providence, to care for the indigent mentally afflicted, and the Hôpital St. Jean de Dieu at Longue Point has developed into an enormous institution, which in 1924 cared for 3,094 patients and is a monument to her charity and fidelity.

In the preface written by the Dominion Archivist, Dr. A. G. Doughty, one finds a remarkable statement. He says, "The English party in Quebec, in their efforts to obtain *some mitigations* in the *rigours* of the Quebec Act, found in Mabane their sternest opponent". This reminds one of the ancient Aesopian fable of the Wolf and the Lamb.

One more and final remark. In the chapter on Mal de Siam, or Yellow Fever, the following sentence gave one pause—"Pierre le Moyne d'Iberville—the greatest Canadian of all time—died of yellow fever in Havana". It was with a guilty feeling that I had to admit total ignorance of this "greatest Canadian". However, the reaction provided stimulation to consult Morgan's Celebrated Canadians, and to find therein an outline of a career unexcelled in fiction. Surely this man, born in Montreal in 1642, who defeated the English in several naval engagements in Hudson's Bay, captured Fort Nelson, invaded Newfoundland, discovered the mouth of the Mississippi, founded Louisiana, made the first settlement in Alabama and conquered the English island of Nevis, should be better known among his countrymen. And this thought leads to a concluding recommendation that Dr. Heagerty's masterpiece may be read with pleasure and profit not alone by the medical profession but by the laity at large who would more thoroughly know their country's glorious past.

Paul M. O'Sullivan.

CURRENT HEALTH LITERATURE

A Selected Public Health Bibliography with Annotations

RUGGLES GEORGE, B.A., M.B., D.P.H.

Diphtheria Treatment — Preliminary observations on the treatment of severe diphtheria with large intravenous doses of antitoxin.

BANKS, H. S. The intensive serum treatment of severe diphtheria. Lancet (London), July 7, 1928, page 4.

Maternal Mortality—This essay won first prize in a competition sponsored by the Saskatchewan Registered Nurses' Association.

HOPKINS, D. M. Causes of Maternal Mortality. Canadian Nurse, July 1928, page 350.

Vision of Children—Observations on the vision of 1860 school children in Washington, D.C.

KEMPF, G. A. et al. A Special Study of the Vision of School Children. Public Health Reports (U.S.P.H.S.), July 6, 1928, page 1713.

Maternal Mortality—A summary of an address to the Edinburgh Obstetrical Society.

YOUNG, James. Maternal Mortality from puerperal sepsis. Canadian Medical Association Journal, August, 1928, page 227.

Diphtheria—A masterly study of the epidemiology of diphtheria.

FROST, W. H. Infection, Immunity and Disease in the Epidemiology of Diphtheria—with Special Reference to Some Studies in Baltimore. Cutter Lecture in Preventive Medicine, Harvard Medical School, The Journal of Preventive Medicine, July 1928.

Prevention of Diphtheria and Scarlet Fever — Susceptible nurses actively immunized to give negative Schick and negative Dick tests before entering on active service in diphtheria or scarlet fever wards, appear to be well protected.

HEKTOEN, LUDVIG AND JOHNSON, CHARLOTTE. Prevention of Diphtheria and Scarlet Fever in Nurses. The Journal of Preventive Medicine, July 1928.

Poliomyelitis—A complete refutation of the claim that streptococci play any part in poliomyelitis.

OLITSKY, PETER K., *et al.* The Rôle of Streptococci in Experimental Poliomyelitis of the Monkey. Journal of Experimental Medicine, September 1928.

Poliomyelitis — Extensive experiments failed to demonstrate any neutralization of the virus of poliomyelitis by either Rosenow's or Pettit's anti-poliomyelitis serum.

STEWART AND HASELBAUER. Virus Neutralization Experiments with Rosenow's and Pettit's Anti-poliomyelitis Sera.

Rural Tuberculosis—The Statistician of the National Tuberculosis Association, New York, shows the actual rural tuberculosis rate to be considerably lower than the urban rate in New York State and that it is declining.

WHITNEY, J. S. Study of Urban and Rural Tuberculosis Death Rates in New York State. American Journal of Public Health, August 1928.

Measles, Skin Test—The authors could find no positive evidence, by skin tests, of any etiological relationship of Tunnicliff's green producing streptococcus to measles.

SMITH, J., AND FRASER, A. M. Skin Tests for Susceptibility to Measles. The Journal of Hygiene, August 1928.